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Monday, October 13 -
Tuesday, October 14
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UP.001

Estimation of Mortality and Morbidity Risk in the Radical Cystectomy Using POSSUM and the Portsmouth Predictor Equation

Masago T¹, Iwamoto H¹, Morizane S¹, Yao A¹, Isoyama T², Honda M¹, Sejima T¹, Takenaka A¹, **Hikita K¹**

¹Tottori University Faculty of Medicine, Yonago, Japan; ²Tottori Prefectural Central Hospital, Yonago, Japan

Introduction and Objectives: Radical cystectomy is associated with appreciable post-operative morbidity and mortality. POSSUM (Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity) is a simple scoring system previously validated in general surgical patients which enables estimation of the risk of complications and death after operation. The Portsmouth predictor equation (P-POSSUM) is a modification that may result in more accurate prediction of death than POSSUM. The aim of this study was to test the validity of POSSUM and P-POSSUM in patients undergoing radical cystectomy.

Materials and Methods: The institutional review board approved our analysis of patients who underwent RC for bladder cancer between January 2003 and December 2011. Physiological and operative severity scores in 280 patients undergoing radical cystectomy were reviewed retrospectively. Predicted morbidity and were calculated using the POSSUM and Portsmouth POSSUM equations. Patients were stratified into risk groups, and observed and predicted outcomes were compared. The accuracy of predictions was assessed using binomial and chi-square analysis.

Results: The data were obtained on 280 patients with radical cystectomy. Observed morbidity and mortality rates were 56.6% and 1.8%, respectively. Predicted morbidity using POSSUM analysis was 138 compared to the 165 observed in our study ($p < 0.0001$). Compared to 5 observed deaths predicted mortality using POSSUM and Portsmouth POSSUM analysis was 34 and 11 ($p < 0.0001$ and $p = 0.205$, respectively). There was significant lack of fit for the POSSUM model to predict morbidity and mortality. The mortality risk estimated by Portsmouth POSSUM was not significantly different from observed mortality rate.

Conclusions: In our study the POSSUM equation over predicted morbidity and mortality, and was unsuitable for the patients undergoing radical cystectomy. The Portsmouth POSSUM

equation allowed satisfactory prediction of mortality. We should evaluate further in larger series.

UP.002

Prospective Non-Randomized Comparison of Surgical Invasiveness of Transvaginal Natural Orifice Transluminal Endoscopic Surgery (NOTES)-Assisted and Conventional Laparoscopic Radical Nephrectomy

Zou X, Xue Y, Zhang G, Yuan Y, Xiao R
First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objectives: Natural orifice transluminal endoscopic surgery (NOTES) has been developed in an attempt to further reduce the morbidity and scarring associated with surgical intervention, and it has been proposed to result in less induced surgical trauma than conventional laparoscopy. This study aimed to investigate the surgical trauma after transvaginal NOTES-assisted radical nephrectomy (NOTES-RN) and laparoscopic radical nephrectomy (LRN).

Materials and Methods: A total of 73 female patients were enrolled in this prospective, non-randomized study. Blood samples were collected preoperatively (T0), intraoperatively (T1), and 12 (T2), 24 (T3), 48 (T4), and 72 h (T5) postoperatively. Serum concentrations of acute-phase markers, C-reactive protein (CRP), serum amyloid A (SAA) antibody, and interleukin 6 (IL-6) and interleukin 1 (IL-1) were measured at each time point by means of ELISA. Clinical data were collected and analysed. NOTES-RN was performed in 35 patients (Group I), LRN in 38 patients (Group II).

Results: Baseline levels (T0) of CRP, IL-6, SAA and IL-1 were comparable in both groups. CRP, IL-6 and SAA levels increased during both kinds of surgery. The mean IL-6 and CRP values were significantly higher in the LRN group than in the NOTES-RN group at T1 ($P = 0.02$ and 0.001), T2 ($P = 0.001$ and < 0.001), T3 ($P = 0.002$ and < 0.001), T4 ($P < 0.001$ and 0.02), and T5 ($P < 0.001$ and 0.03), respectively. Also, the serum levels of the SAA was higher for LRN at T2 ($P < 0.001$), T3 ($P = 0.001$), T4 ($P = 0.001$) and T5 ($P = 0.003$). IL-1 did not change at the different sample times.

Conclusion: NOTES-RN was associated with lesser extend of IL-6, CRP and SAA release indicating a smaller degree of surgical insult and the minimal-invasive nature of this procedure.

UP.003

Randomized Controlled Trial Comparing Transvaginal Natural Orifice Transluminal Endoscopic Surgery (NOTES)-Assisted Adrenalectomy and Conventional Laparoscopic Adrenalectomy

Zhang G, Xue Y, Zou X, Yuan Y, Xiao R
First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objectives: Our previous studies have suggested that transvaginal natural orifice transluminal endoscopic surgery (NOTES)-assisted adrenalectomy (NOTES-A) is a feasible alternative to conventional laparoscopic adrenalectomy (LA). However, there is a lack of data from randomized studies validating any benefit over LA. The aim of the trial was to compare NOTES-A with LA regarding short-term pain, health-related quality of life (HRQoL), recovery, and complications.

Materials and Methods: Eligible patients were randomized to receive NOTES-A or LA. Primary end points were pain until the morning of postoperative day (POD) 3 and cosmetic result. Secondary end points were intra- and postoperative complications, operative time, length of postoperative hospital stay, time to full recovery, and HRQoL up to 4 weeks.

Results: Female patients were recruited between February 2011 and September 2013. Of 51 randomized patients, 42 received intervention: 19 NOTES-A and 23 LA. Operative times for NOTES-A were greater than LA (98.5 minutes vs. 74.6 minutes, $P < 0.05$). Length of postoperative hospital stay and the rate of intra- and postoperative complications were similar in the 2 groups. However, significant advantages were found for the NOTES-A regarding pain until POD 3 (all $P < 0.05$). In the NOTES-A group, patients were significantly more satisfied with the cosmetic result ($P < 0.05$). Time to full recovery was shorter in the NOTES-A group. HRQoL as determined by the SF-36 survey was not significantly different between groups.

Conclusion: NOTES-A requires a longer operative time than LA but may result in less pain, faster recovery, and increased satisfaction with the cosmetic result. Larger randomized trials performed later may identify more subtle advantages of one method over another.

UP.004

Suprapubic-Assisted Laparoendoscopic Single-Site Surgery Nephrectomy with Report of 110 Cases

Zhang G, Zou X, Xue Y, Yuan Y, Xiao R, Wu G, Wang X, Liu F, Xu H, Liu M, Zhong X
First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objectives: To describe the initial clinical experience of suprapubic-assisted laparoendoscopic single-site surgery nephrectomy (SA-LESS-N) in Urology, and evaluate its safety, feasibility and efficacy.

Materials and Methods: One hundred and ten consecutive patients including 86 males and 24 females, with a mean age of 52.6 years (range 20 to 78), were subjected to SA-LESS-N in our center. There were 83 non-functioning kidneys, 24 renal carcinomas, and 3 tuberculosis kidneys in our study. Under general anesthesia, the patients were positioned in lateral decubitus

with affected side elevated 70°. One 5- and 10-mm (or two 5-mm) trocars were inserted into the umbilical edge. A 10- or 5-mm trocar was inserted into the abdominal cavity below the pubic hairline, through which a 10-mm 30° or 5-mm 0° laparoscope was placed. The operation was the same as that of standard laparoscopy. The specimens were removed after the incisions below the pubic hairline were enlarged or they were crashed and removed from the incision at the umbilicus.

Results: SA-LESS-N was successfully completed in 110 patients. Seven patients required conversion to standard laparoscopy because of intra-operative bleeding (n=6), and failure to progress (n=1). One patient underwent open conversion because of gradual bleeding during the dissection of dense adhesive renal pedicle due to infection and fibrosis. The mean operative time for simple nephrectomy was 115 (range 95 to 175) mins, radical nephrectomy 85 (range 75 to 160) mins. The mean blood loss was 150 (range 55 to 300) ml. Hospitalization duration was between 5 and 8 days with a mean postoperative stay of 7.1 days. The mean follow-up of 23.1 months (range 2 to 42) showed hidden umbilicus scar. The suprapubic scar was not detectable because of the pubic hairs.

Conclusion: SA-LESS-N appears to be feasible, safe and effective. It would not only lead to improved cosmetic results, but lead to little postoperative pain.

UP005

Floating Kidney: A Rare Presentation of a Common Ailment

Yarmohamadi A, Tarjoman N, Saeedi P
Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Floating Kidney is the name given to subcapsular perinephric accumulation of fluid, which can sometimes become as huge as to cause midline displacement of the kidney and also compression of the renal cortex. This condition can be a result of a number of diseases, and is rarely seen as a representation of renal parenchymal diseases. Proteinuria may be present in the nephrotic or subnephrotic range. Although treating the underlying renal condition will reduce the fluid collection in most cases, fenestration of Gerota's fascia to drain the fluid into the peritoneal cavity is used in persistent cases.

Materials and Methods: In this case report, we present a 15 years-old girl with subnephrotic proteinuria presenting with bilateral flank mass and abdominal pain. Computed tomography scans showed bilateral perinephric fluid collection, which was compatible with transudation. Results: After being unsuccessfully treated by a percutaneous nephrostomy and later placement of bilateral Double J Intraureteral Catheters, the patient underwent a surgery to obtain a

kidney biopsy and to fenestrate Gerota's Fascia, draining the perinephric collection into the peritoneal cavity. Biopsy results were compatible with Membranous Glomerulonephritis (MGN). A follow-up ultrasonography 9 months later showed no fluid accumulation.

Conclusion: This report illustrates the successful application of surgery to treat a case of subcapsular perinephric fluid collection as a result of parenchymal renal diseases. By fenestrating Gerota's fascia, we provided sufficient drainage of the fluid to reduce the pressure on the kidney and eliminate the patient's symptoms.

UP007

The Potential of Diffusion-Weighted Magnetic Resonance Imaging as an Imaging Biomarker Reflecting the Metastatic Propensity of Upper Urinary Tract Cancer

Uchida Y¹, Yoshida S¹, Moriyama S¹, Kobayashi S¹, Koga F¹, Ishioka J¹, Satoh S², Ishi C², Tanaka H², Matsuoka Y¹, Saito K¹, Masuda H¹, Fujii Y¹, Kihara K¹

¹Tokyo Medical and Dental University, Tokyo, Japan; ²Ochanomizu Surugadai Clinic, Tokyo, Japan

Introduction and Objectives: Upper urinary tract cancer (UUTC) that is localized at the initial diagnosis but will develop metastasis soon after radical nephroureterectomy (RNU) can be a candidate for neoadjuvant chemotherapy. However, identifying these occult metastases preoperatively remains a challenge. Diffusion-weighted MRI (DW-MRI) is a functional imaging technique that reveals physiological information by quantifying the diffusion of water molecules in tissues. The extent of water diffusion is quantified as the apparent diffusion coefficient (ADC). We examine whether ADC can be a biological marker indicating the metastatic potential of UUTC.

Materials and Methods: At a single center between January 2007 and February 2012, 123 consecutive patients suspected of having UUTC were enrolled in an institutional prospective study. Multi-sequence MRI including DW-MRI was performed prior to any interventions. Fifty eight patients, who were clinically diagnosed with UUTC, were eligible for the present analysis.

Results: The ADC of UUTC ranged from 0.65 to 1.58 × 10⁻³ mm²/s (median, 0.94 × 10⁻³ mm²/s), and the median follow-up period was 954 days. Of the 58 patients, twelve had some metastases at initial diagnosis (categorized as 'macroscopic metastasis'). Eleven patients developed metastases during the follow-up period (categorized as 'microscopic metastasis'). The remaining 35 patients were categorized as 'localized disease'. ADC was significantly lower in 'macroscopic/microscopic metastasis' than in 'localized disease' (P = 0.0002). Multivariate analysis of preoperative variables identified

ADC and clinical T stage based on T2W-MRI as an independent predictive factor of metastatic UUTC. The metastasis-free survival in 'microscopic metastasis/localized disease' was significantly shorter in patients with lower ADC (n = 38) compared to those with higher ADC (n = 20) (P = 0.0026; three-year metastasis-free survival rate, 61% vs. 100%). We stratified 'microscopic metastasis/localized disease' into a high-risk group (27 patients with lower ADC and clinical T3-4) and a low-risk group (31 patients with higher ADC or clinical Ta-2). The three-year metastasis-free survival rates of the high and low-risk groups were 45% and 93%, respectively (P = 0.0002).

Conclusion: UUTC with lower ADC is more likely to have metastatic potential. Incorporating ADC into clinical T stage helps to differentiate metastatic UUTC at the initial diagnosis.

UP008

Is Second-Transurethral Resection Really Needed for T1 Bladder Cancer? Systematic Review, Metaanalysis of the Literature and of a Contemporary Cases Series

Hurle R¹, Castaldo L¹, Taverna G¹, Pasini L¹, Ferro M², Bottero D², Naselli A³, Puppo P⁴, de Cobelli O², Graziotti P¹

¹Division of Urology, Istituto Clinico Humanitas (IRCCS), Milan, Italy; ²Division of Urology, European Institute of Oncology, Milan, Italy; ³Division of Urology, Istituto Clinico Humanitas Mater Domini, Castellanza, Italy; ⁴Division of Urology, Ospedale Civile, Sanremo, Italy

Introduction and Objectives: To assess the impact of second transurethral resection (reTUR) in T1 bladder cancer by means of a systematic review of literature and meta-analysis of available datasets to find out potential discrepancies and support guidelines commitment.

Materials and Methods: After definition of the population and of the outcome a systematic search of available literature in English from 1980 to 2012 was performed. Pooled prevalence of residual tumor of any stage and grade and of upstage at reTUR was assessed and computed by means of random effects model to take into account the extreme variability showed by I squared and Cochran's Q values. A sensitivity analysis was further conducted to exclude excessive influence by a single study.

Results: Among papers identified, only 24 matched inclusion and exclusion criteria. Unpublished prospective data from a series of Humanitas Gavezzi hospital were included in the analysis. A total of 2399 and 2328 T1 cases formed the study population to assess the prevalence of residual tumor and upstaging respectively. After reTUR, 1330/2399 (55%) patients were found with residual disease. The incidence of residual disease was divided in lower stage (Ta or Cis), same stage (T1) and upstage (> T1) and was respectively 429/2208

(19%), 486/2208 (23%) and 348/2328 (16%). In the series including only cases with muscle in the specimen of the previous TUR [13, 19, 22, 24, 25] the rate of residual disease and of upstaging after reTUR was respectively 166/448 (37%) and 42/448 (9%). In conclusion pooled residual tumor prevalence at reTUR was 0.49 (95% CI 0.41 – 0.57). Pooled T2 prevalence at reTUR was 0.09 (95% CI 0.05 – 0.14). Sensitivity analysis excluded excessive influence from each of the study examined.

Conclusion: Pooled prevalence of residual tumor and of upstaging to invasive disease at reTUR is really high and stable among studies belonging to different decades in T1 cases, also in prospective series of procedures performed by experienced surgeons. Therefore reTUR remains a fundamental procedure.

UP009

Pre-Surgical Sunitinib Treatment for Renal Cell Carcinoma: A Case Series

Tokuda N, Uchino H, Morokuma F
Saga-Ken Medical Centre Koseikan, Saga, Japan

Introduction and Objectives: We assessed the efficacy and safety of using sunitinib as a pre-surgical therapy for renal cell carcinoma (RCC).

Materials and Methods: Seven patients (four males and three females; mean age, 61.4 years; on nine renal units and one liver) underwent pre-surgical sunitinib treatment to preserve their renal function by reducing the tumor volume, to downstage and prevent the progression of the RCC while waiting for surgery. Sunitinib treatment was started at a dose of 12.5 mg or 25.0 mg daily, in six-week cycles consisting of four weeks on and two weeks off. Dose escalation was performed if no significant adverse events were observed.

Results: Of the seven patients, six patients had localized disease and one had metastatic disease (liver). Two patients had bilateral RCC and one had RCC in a solitary kidney. None of the patients discontinued sunitinib due to toxicity. The duration of sunitinib treatment ranged from one to 19 cycles. The treatment with sunitinib was stopped three to seven days before surgery. Eight of the nine RCC tumors showed no progression during the treatment period. One of the seven patients experienced grade 3 thrombocytopenia before surgery. He also experienced severe perioperative complications, such as intraoperative hemorrhaging, deep vein thrombosis, and cellulitis. Due to the downsizing of the primary tumor, one patient with bilateral renal tumors and one patient with renal tumor in a solitary kidney were able to undergo nephron-sparing surgery (NSS). One patient with bilateral renal tumors and liver metastases underwent left NSS after two cycles of sunitinib, and thereafter underwent right radical nephrectomy and concurrent liver metastasectomy. In one patient, three cycles of

the treatment reduced the inferior vena cava tumor involvement to the level of the renal vein and the tumor was downstaged from T3b to T3a. A surgical specimen showed a clear cell phenotype and negative surgical margins in all seven patients.

Conclusion: Using sunitinib as pre-surgical therapy may be an option for clear cell RCC patients who need to preserve their renal function and reduce the tumor burden and/or who must wait more than a month before undergoing surgery.

UP010

Hypometabolism: A Novel Strategy to Extend Warm Ischemia Time during Partial Nephrectomy

Alexander B, Fishman A, Grasso M, Dorai T
New York Medical College, Valhalla, USA

Introduction and Objectives: Hibernating animals go through repetitive metabolic cycles in which their metabolic rate and body temperature drop briefly before entering a longer state of true hibernation. Their heart rate and blood flow may decrease to 1/30 and oxygen (O₂) consumption to 1/100 of their respective euthermic levels. As a result of this hypometabolic preconditioning, their organs do not show any detrimental effects of ischemia. Several novel strategies to induce a hibernation-like state in non-hibernating model systems like mice have been reported. We investigated the preconditioning effect of administering 5'-Adenosyl monophosphate (5'-AMP) to mice to create a hypometabolic state and its protective effect on a subsequent renal ischemic episode.

Materials and Methods: C57BL/6 mice were randomized into 3 groups of 8: sham, ischemia only, and hypometabolism + ischemia. A hypometabolic state was induced by intra-peritoneal injection of a solution of 5'-AMP. The animals enter into a hibernation-like state within minutes. The O₂ consumption rate and the core body temperature (CBT) were followed for a period of 6 hrs. CBT dropped to near ambient temperature and was maintained for nearly 4.5 hrs. Two hours after 5'-AMP injection, which accounted for a hypometabolic preconditioning, left renal ischemia was induced by clamping the renal pedicle for 40, 50 and 60 minutes. After a reperfusion period of 24 hours, the animals were sacrificed and their ischemic and contra-lateral kidney were harvested and processed for both immunohistochemistry and protein chemistry.

Results: The pre-conditioned left kidneys showed significantly reduced morphological changes as evidenced by the H&E and Periodic Acid Schiff stains. Immunoblotting analysis showed a reduction in the ischemia specific markers as compared to ischemic controls. A reduction in the ischemia specific marker Cystatin-C was shown on the immunoblots as a

result of hypometabolic preconditioning indicating markedly reduced ischemic damage even after a 60-minute ischemia time.

Conclusions: These results show that inducing a hypometabolic state in non-hibernators such as mice can be used as a novel strategy to reduce the severity of renal ischemic damage as measured by several accepted parameters. Perfecting this renal ischemia technique in higher animals such as dogs and pigs may pave the way to test this novel concept in man.

UP011

Laparoscopic Transmesocolic Pyeloplasty: Our 5-Year Experience

Guliev B, Komyakov B, Aliev R
Dept. of Urology, Mechnikov's Medical University, Saint-Petersburg, Russia

Introduction and Objectives: In the last few years laparoscopic surgery has become the gold standard for the treatment of ureteropelvic junction obstruction (UPJO). The aim of the present study is to describe the advantages of the transmesenteric approach for laparoscopic pyeloplasty.

Materials and Methods: Between October 2009 and December 2013, 84 patients underwent transperitoneal laparoscopic dismembered pyeloplasty. All patients presented a primary UPJO. The mean age was 32 years (range 20 to 58), and of the 40 women and 44 men, 46 presented UPJO on the right side and 38 on the left side. Eighteen patients with left UPJO underwent laparoscopic pyeloplasty via transmesenteric approach. All patients underwent Anderson-Hynes pyeloplasty by a single surgeon. Three of them had horseshoe kidney. All cases were stented for period of four or five weeks post-operatively.

Results: No conversions or intraoperative complications were observed. No blood transfusions were required. The mean operative time was 96 min, with range 80–126 min. The mean hospital stay was 3.2 days with a range of 2.4 to 5 days. The mean follow-up period was 13 months (range, 6 to 22 months). After stent removal all patients were underwent renal scans and renal ultrasound. Sixteen patients had improved function on the scan, while in two patients, the function remained the same. In all patients renal ultrasound showed a decrease in the severity of hydronephrosis.

Conclusions: The laparoscopic pyeloplasty by transmesenteric approach in patients for left-sided UPJO is safe and feasible, and has technical advantages.

UP013

Robotic Assisted Laparoscopic Partial Adrenalectomy

Kamalakkannan R, Bhat A, Kanekar S
Apollo Hospitals, Chennai, India

Introduction and Objectives: For patients

requiring bilateral adrenalectomy, adrenal sparing surgery may reduce the risk of lifelong hormonal supplementation and reduce associated risks such as osteoporosis and hypoandrogenism. Indications for partial adrenalectomy include bilateral hereditary adrenal tumours, as well as tumours in a solitary adrenal gland. There has been an increasing trend toward partial adrenalectomy worldwide in the last 20 years. Partial adrenalectomy is most commonly done for Conn's syndrome and pheochromocytoma. Partial adrenalectomy has the advantage of tumour control while preserving the adrenocortical function. The recurrence rate is only 3% and more than 90% of patients remain steroid independent. A minimally invasive approach to adrenalectomy is now considered the standard of care for most adrenal surgeries due to the reduced morbidity and improved outcomes. The robotic approach has several potential advantages when compared to laparoscopy. The robot may be useful for the delicate dissection of large blood vessels, such as the aorta, vena cava, and renal vessels, and of organs such as the liver and spleen. We report two cases of robotic partial adrenalectomy, one for bilateral pheochromocytoma with right total adrenalectomy and left partial adrenalectomy and other for a solitary adrenal gland.

Materials and Methods: Fifteen years old female presented with bilateral pheochromocytoma, right larger than the left. She underwent robotic assisted laparoscopic right total adrenalectomy and left partial adrenalectomy. Fifty years old male patient presented with right adrenal mass. He had left radical nephrectomy for his left renal tumour 5 years back. He underwent right partial adrenalectomy.

Results: Patient's postoperative period was uneventful. Serum cortisol and urinary metanephrine excretion went back to normal postoperatively. Histopathological examination confirmed bilateral pheochromocytoma and renal cell carcinoma.

Conclusions: Cortical sparing adrenalectomy should be attempted where possible especially in bilateral condition to avoid lifelong steroid replacement. A clear differentiation between normal and neoplastic adrenal tissue is often possible, which permits a planned partial resection of the gland in selected cases. Partial adrenalectomy is safe and can be considered as first line treatment for small adrenal masses.

UP014

The Comparison of Diameter-Axial-Polar Nephrometry with R.E.N.A.L Nephrometry Score in Patients with cT1a Renal Cell Carcinoma for Decision-Making of Laparoscopic Partial Nephrectomy
Naya Y, Oishi M, Ueda T, Nakanishi H, Naitoh Y, Nakamura T, Hongo F, Kamoi K, Okihara K, Miki T
Kyoto Prefectural University of Medicine, Kyoto, Japan

Introduction and Objectives: In the NCCN Guidelines on Renal Cell Carcinoma, partial nephrectomy (PN) is appropriate for cT1a renal tumors, and radical nephrectomy is also recommended if PN is not feasible or there is a central tumor location. Recently, Kutikov and Uzzo proposed R.E.N.A.L-nephrometry score (R.E.N.A.L-NS), and Simmons et al reported that DAP (diameter-axial-polar) nephrometry. These scoring systems were developed in an attempt to standardize the description and reporting of tumor anatomy, as well as to provide a construct to objectively assess the treatment decision-making process for partial nephrectomy.

Materials and Methods: A retrospective review of our institution's prospectively maintained and Institutional Review Board-approved database (January 2003 to February 2010) was performed. A total of 142 patients with cT1aN0M0 lesions who underwent treatment were identified. Treatment methods were 68 laparoscopic nephrectomies (LRN), 74 laparoscopic partial nephrectomies (LPN). The clinicopathological characteristics including R.E.N.A.L-NS and DAP were retrospectively analyzed for the entire cohort. Statistical analyses were calculated using SAS.

Results: In the LRN group, the tumor size was larger than that in LPN (30mm vs. 20mm, $p<0.0001$). The R.E.N.A.L-NS and DAP in the LRN group was significantly higher than that in the PN group (R.E.N.A.L-NS; 9 vs. 7, DAP; 7 vs. 5, $p<0.0001$ respectively). A multivariate logistic regression analysis for election of PN showed that tumor size (≤ 2 cm), R.E.N.A.L-NS, DAP, and imperative condition (solitary kidney) were independent factors. DAP is a strongest independent factor for decision-making for performing LPN. The ROC-AUC of DAP and R.E.N.A.L NS for performing LPN were 0.897 and 0.825, respectively.

Conclusion: Based on ROC analysis, when DAP was 6 or less, or R.E.N.A.L-NS was 8 or less, LPN should be considered and when DAP was 7 or more, or R.E.N.A.L-NS was 9 or more, OPN should be considered. Both R.E.N.A.L-NS and DAP are useful for decision-making for performing LPN. DAP is a strongest independent factor for LPN.

UP015

Is Laparoscopic Pyeloplasty a Comparable Option to Treat Ureteropelvic Junction Obstruction (UPJO)? A Comparative Study
Ali M, Biyabani S, Ghirano R, Siddiqui K
The Aga Khan University, Karachi, Pakistan

Introduction and Objectives: Established treatment options for Ureteropelvic junction obstruction (UPJO) include pyeloplasty by open or laparoscopic approaches or endopyelotomy. Laparoscopic pyeloplasty is minimally invasive technique to perform Anderson-Hynes

dismembered pyeloplasty. Several large case series and nonrandomized comparisons have shown success rates exceeding 90%, which are similar to that of open dismembered pyeloplasty. This study aimed to compare laparoscopic with open pyeloplasty in our series.

Materials and Methods: Records of patients undergoing pyeloplasty from January 2008 to December 2012 were reviewed. We compared the operative time, hospital stay, perioperative complications, blood loss, and duration of surgery, outcome and follow-up of the two groups. Statistical analysis was done by using SPSS version 19. Continuous variables were analyzed by using student t-test and p value of 0.05 was taking statistically significant.

Results: Records of 73 patients were available for study. Out of these, 29 had laparoscopic pyeloplasty (group1) and 44 patients underwent open pyeloplasty (Group 2). The demographic data were similar in the two groups with a female predominance. A crossing vessel could be identified in 86.2% (25/29) in Group 1 vs. 75% (33/44) in Group 2. Three patients required conversion from laparoscopic to open pyeloplasty (3/32=29). Laparoscopic procedures were associated with a longer mean operating time (178 vs. 153 min $p=0.04$), median estimated blood loss (54 vs. 110 ml $p<0.001$), and a shorter mean hospital stay (2.7 vs. 4.5 days, $p<0.001$). Pre-operative MAG-3 was done in laparoscopic vs. open preoperatively (27/29=93% vs. 32/44=72%) and on follow-up MAG-3 was done in (21/29=74.5% in Group 1 vs. 23/44=52.2%) in Group 2 respectively. Only 2 patients had poor response on MAG-3 in both groups. The JJ stent was removed after 02 months. The incidence of postoperative complications for laparoscopic vs. open (5 of 29, 13% vs. 9 of 44, 20%, $p=0.141$) and success rates was comparable in the 2 groups. Mean follow-up (2.71 \pm 1.2).

Conclusion: Laparoscopic pyeloplasty is associated with shorter hospital stay, less pain and less blood loss. The efficacy (in term of success rate and perioperative complications) of laparoscopic pyeloplasty is comparable to that of open pyeloplasty.

UP016

Major Cardiovascular Events in Short-Term Following after Genitourinary Tract Surgery in Patients with Ischemic Heart Disease
Fanni Z¹, Nikoobakht M¹, Bozorgi A², Karbalaee Saleh S², Sharifi A¹

¹Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran;

²Dept. of Cardiology, Sina Hospital, Tehran, Iran

Introduction and Objectives: Despite development of minimally invasive therapies, surgery has remained the standard treatment for elderly patients with lower genitourinary tract problems. Concurrence of this disorder with

increased prevalence of cardiovascular diseases in this age group can put patients at risk of cardiovascular morbidity and mortality after surgery. So our aim was to investigate incidence of major cardiovascular events in short term following after prostate surgery in patients with Ischemic Heart Disease (IHD).

Materials and Methods: This retrospective cohort study was run as census on all patients hospitalized in Sina Hospital from March 2010 to August 2012 and who underwent prostate surgery. An inclusion criterion was prostate operation, and an exclusion criterion was history of major surgery within the three last months. A list of all patients candidate for surgery operation was extracted. Using their medical records, occurrence of cardiac events in the postoperative period until end of hospitalization was recorded in specially designed forms. Data were analyzed using SPSS software (significance level set as p value=0.05).

Results: Finally 206 medical records were studied. Incidence of UA was significantly higher ($P=0.04$) in patients with IHD compared to patients without IHD and increased risk in them were 4.63 (95% CI: 1.10, 19.40). Patients with IHD faced risk of postoperative cardiac complications 5 times higher (95% CI: 1.76, 14.42). Existence of diabetes mellitus and blood hypertension caused increased risk of cardiovascular complications in patients by 3 times.

Conclusion: According to findings in the current study, risk of cardiac complications after prostate surgery in patients with IHD was higher and it should be done with caution.

UP017

Primary Renal Tumor Burden with Its Necrosis and Its Tumor Vascularity Are Independent Prognostic Factors in Patients with Metastatic Renal Cell Carcinoma Treated with VEGF-Targeted Therapy
KIM S, Joung J, Seo H, Lee K, Chung J
Dept. of Urology, National Cancer Center, Goyang, Gyeonggi, South Korea

Introduction and Objectives: The many important prognostic factors for survival in patients with metastatic renal cell carcinoma (mRCC) were evaluated in the era of cytokine therapy, and only recently were revalidating in patients receiving VEGF-targeted therapy (TTs). This study is aimed to investigate the possible prognostic role of primary renal tumor size with necrosis and its vascularity in terms of progression-free survival (PFS) and overall survival (OS), in patients with mRCC treated with TTs.

Materials and Methods: A consecutive 38 patients with mRCC treated with TTs without history of previous neither cytokine nor surgical treatments during the period 2006-2011 were selected. The Response Evaluation Criteria in Solid Tumors criteria were used to assess TB as well as primary renal tumor necrosis (TN)

between baseline CT and best therapeutic CT before progression during TT. Additionally, the Housefield unit (HU) in enhancing phase of baseline CT was also evaluated referring to the vascularity within tumor with other clinicopathological parameters. The patients were divided into response group (RG) with partial response and non-response group (NRG) with either stable or progression disease in RECIST criteria. The PFS and OS rates with its associated prognostic factors were also evaluated using statistical hazards model.

Results: The median follow-up was 16 months with 7.0 (± 5.8) months of mean treatment duration. The median OS and PFS of total patients were 8.0 and 4.5 months. The baseline characteristics of two groups (12 RG vs. 26 NR) were significantly different for baseline body surface area, hemoglobin, platelet count, HU, and tumor size and its necrotic size. The OS and PFS of RG and of NRG were also significantly different (14/10 months vs. 10/3 months, respectively). Compared to best therapeutic CT, baseline tumor size (HR 8.17, 95%CI 1.780-3.519; $p=0.007$) with necrotic size (HR 14.59, CI 2.265-9.403; $p=0.005$) and its HU of primary renal tumor (HR 0.884, CI 0.815-0.959; $p=0.003$) were independently significant prognostic factors in multivariate analysis.

Conclusions: TB and its HU are easy to calculate at baseline CT and significantly relates to prognosis in patients with mRCC without any previous treatments. We believe that this information could be translated into clinical practice.

UP018

Endoscopic Management of a Chronic Ureterocutaneous Fistula Using Cyanoacrylic Glue
Omar M¹, Ahmed Abdelwahab A², Elmahdey A¹

¹Dept. of Urology, Menofya University, Menofya, Egypt; ²UDUTH, Sokoto, Nigeria

Introduction and Objectives: Ureterocutaneous fistula is a rare complication of renal surgery. A minimally invasive approach may be a favorable substitution for many challenging surgeries. Cyanoacrylate glues is one of the tissue adhesives, used primarily for endoscopic control of bleeding from gastric varices and less commonly for hemostasis of other bleeding lesions.

Materials and Methods: We present a 33 year old female, complaining of left loin, ureterocutaneous fistula, following a series of uro-gynecological operations. We used an open-end ureteral catheter through a retrograde endoscopic approach for instillation 2ml of the sealant (1ml lipidol+1ml cyanoacrylate mixture into the ureteral lumen to seal the ureter and fistulous tract.

Results: With a follow-up of 5 months, the fistulous opening healed spontaneously a week

after procedure, she remained dry and symptoms free 5 months after the procedure.

Conclusion: In carefully selected patients, endoscopic delivery of cyanoacrylate sealant is feasible and effective in treating ureterocutaneous fistula especially in surgically adventurousness cases.

UP019

Evaluation of Microvascular Density in Clear Cell Renal Cell Carcinoma and Normal Kidney Tissue

Veselaj F¹, Manxhuka-Kerliu S², Dervishi L¹, Shahini L², Selmani L¹, Gashi H¹

¹Dept. of Urology, UCC of Kosovo, Prishtina, Kosovo; ²Dept. of Pathology, UCC of Kosovo, Prishtina, Kosovo

Introduction and Objectives: Angiogenesis can be quantified in solid tumors by means of immunohistochemistry (IHC) in terms of microvascular density (MVD), defined as the number of small vessels in a specific tumoral area. The aim of this study was to evaluate the expressions of CD31 in clear cell Renal Cell Carcinoma (ccRCC) and normal kidney tissue and as well the relationship between MVD and clinicopathological factors.

Materials and Methods: Formalin-fixed and paraffin-embedded tissue blocks from 38 patients with ccRCC were studied. The control group was tissue sections from 20 cases with normal kidney tissue surgically removed because of other than malignant disease. There were 18 men and 20 women, with a median age of 60.2 years (mean 60.2; range 36 – 81 years). The situations of tumor angiogenesis were evaluated by assessing MVD through CD31 immunostaining.

Results: The value of MVD marked by CD31 (ranged from 5.0 to 292.0 with a median of 109.1), in the ccRCC and were significantly higher than those in control group (ranged from 0.0 to 55.0 with a median of 23.2). Statistical analysis the MVD values marked by CD31 there were no significant association between higher VEGF expression and high tumor stage ($P=0.05$) in ccRCC. Statistical analysis higher MVD was not associated with high tumor size ($P=0.05$), high tumor grade ($P=0.05$) and high tumor stage ($P=0.05$) in ccRCC.

Conclusions: The degree of angiogenesis in ccRCC is higher than in normal kidney tissue. The MVD of ccRCC is significantly higher than that in non-tumor kidney tissue. The expressions of CD31 not correlated with tumor size, tumor grade and tumor stage in ccRCC.

UP020

Expression of Vascular Endothelial Growth Factor in Clear Cell Renal Cell Carcinoma and Normal Kidney Tissue

Veselaj F¹, Manxhuka-Kerliu S², Dervishi L¹, Shahini L², Selmani L¹, Gashi H¹

¹Dept. of Urology, UCC of Kosovo, Prishtina, Kosovo; ²Dept. of Pathology, UCC of Kosovo, Prishtina, Kosovo

Introduction and Objectives: Angiogenesis has a critical role in tumor growth and metastasis. The aim of this study was to evaluate the expression of vascular endothelial growth factor (VEGF) in clear cell Renal Cell Carcinoma (ccRCC) and normal kidney tissue, and as well the relationship between VEGF and clinicopathological factors.

Materials and Methods: The study included 38 patients with histopathologically verified ccRCC and 20 tissue sections from normal kidney tissue surgically removed because of other than malignant disease as control group. Paraffin sections were stained by H&E for standard histological analysis. The expression of VEGF was done by immunohistochemical (IHC) staining.

Results: There were 18 men and 20 women, with a median age of 60.2 years (range 36 – 81 years). The expression of VEGF in ccRCC and was higher than in control group (55.6: 47.5). Statistical analysis higher VEGF was associated with high tumor grade ($P=0.05$) and high tumor size ($P=0.05$) in RCC. There were no significant association between higher VEGF expression and high tumor stage ($P=0.05$) in ccRCC.

Conclusion: The degree of angiogenesis in ccRCC is higher than in normal kidney tissue. The expression of VEGF may be responsible for angiogenesis in RCC and VEGF expression may function as tumor associated angiogenic factors in RCC.

UP.021

Laparoscopic Adrenalectomy: A Multi-Centre Review on the Operative Data and Complications and a Systematic Review of the Literature

Bondad J¹, Aboumarzouk O^{2,3}, Matłok M⁴, Budzyski P⁴, Soczawa M⁵, Korzelik I⁶, Jaskulski J⁶, Szydełko T⁷, Słojewski M⁵, Budzynski A⁴, Chłosta P^{4,6}

¹Princess Alexandra Hospital, Harlow, UK; ²Wales Deanery, Cardiff, UK; ³Islamic University of Gaza, Gaza, Palestine; ⁴Jagiellonian University, Krakow, Poland; ⁵Pomeranian Medical University, Szczecin, Poland; ⁶Institute of Oncology, Kielce, Poland; ⁷Medical University, Wrocław, Poland

Introduction and Objectives: Laparoscopic adrenalectomy (LA) is the recommended treatment for benign adrenal disease. Although it is widely used worldwide, there has only been one systematic review carried out in 2006 in spite of the procedure being around for over twenty years. We review the current literature on LA as well as data from four centres performing LA.

Materials and Methods: We carried out a systematic literature search review using

PubMed for studies reporting on 100 or more LA. We also carried out a retrospective study on 4 centres carrying out LA between March 2003 and January 2013. We've compared our results with the data from the systematic review.

Results: A total of 142 male and 279 female patients underwent LA from the 4 centres during the 9-year study period. The mean operative time was 85.56±34.61 minutes, with a conversion rate of 1.43%. The blood transfusion rate was 3% and the average blood loss was 68.51 millilitres. There was no mortality recorded from the series. The literature search collated 65 studies, involving 28,751 cases. Our systematic review revealed an average operating time of 125 minutes with a conversion rate of 1.55%. The average intra-operative blood loss was 44 millilitres and the average complication rate was 5.20%. Overall, our data is comparable to the results from the literature search.

Conclusion: LA is a safe procedure for benign adrenal disease with low mortality and conversion rate, and acceptable complication rate. Evolution of the original technique described by Gagner et al is inevitable and robotic adrenalectomy, partial adrenalectomy and single port adrenalectomy will no doubt be widely accepted in the future pending further evaluation.

UP.022

Tubularized Buccal Mucosa for Long Segment Ureteral Replacement: An Experimental Study in Dogs

Elbakry A¹, Mohamed M², Samir I¹, Zalata K³, Rashwan H¹

¹Dept. of Urology, Suez Canal University, Ismailia, Egypt; ²Dept. of Veterinary Surgery, Suez Canal University, Ismailia, Egypt; ³Dept. of Pathology, Mansoura University, Mansoura, Egypt

Introduction and Objectives: Replacement of a long segment of the ureter due to long stricture or severe ureteral trauma is a challenging problem. We tried to evaluate the feasibility and outcome of the use of tabularized buccal mucosal graft for replacement of a long segment of the ureter in dogs.

Materials and Methods: Twelve female mongrel dogs weighing 15-25 kg were used. A buccal mucosal strip 10-12 cm long and 1.2 cm width was harvested from the lower cheek. The buccal mucosal graft was cleaned from any underlying tissues. The graft was tabularized around 4 French urethral catheter, using 6/0 polygalactin sutures except 1cm at each end. A segment of the same length was excised from the iliac ureter. The tabularized buccal graft was anastomosed to a spatulated ureteral ends using interrupted 6/0 polygalactin sutures. An omental flap was mobilized and wrapped around the graft. The omental wrapping was secured by chromic catgut sutures and fixed proximally and distally to the psoas muscle. The ureteral stent was left for three weeks.

The animals were followed-up for 12 weeks. Intravenous pyelography was done then the animals were sacrificed and the graft was examined grossly and histologically.

Results: Intravenous pyelography revealed that tabularized buccal mucosal graft was patent and permitted adequate and free passage of urine without obstruction. The graft was found to be viable elastic and well vascularized. Histological examination revealed new vasculature and new capillary formation in the buccal mucosal tube. Few myofibroblasts were detected under graft epithelium.

Conclusion: The use of tubularized buccal mucosa for replacement of a long segment ureteral defect is feasible and allowed free urine transport without obstruction. Omental wrapping is necessary for revascularization of the graft. The technique may be a considerable option for the management of long segment ureteral defects.

UP.023

Instillation of Intra-Renal Mitomycin C following Ureteroscopic Treatment of Large Volume, Multifocal Upper Tract Urothelial Tumors

Alexander B, Fishman A, Cohen J, Grasso M
New York Medical College, Valhalla, USA

Introduction and Objectives: The role of intra-renal mitomycin C (IR-MMC) following ureteroscopic treatment of upper tract urothelial tumors (UTT) has not been well established. We present our experience and long-term outcomes in a subset of patients who received IR-MMC following ureteroscopic treatment of large volume, multifocal UTT.

Materials and Methods: We performed a retrospective review of all patients who underwent ureteroscopic treatment of UTT between December 2001 and October 2010. High risk patients (poor surgical candidates for nephroureterectomy) with large volume, multifocal UTT that received IR-MMC were included in our analysis. These patients underwent endoscopic biopsy and ablation to clear initial tumor burden usually in a two stage procedure. Patients received postoperative IR-MMC (20mg in 50ml 0.9% normal saline) via a single pigtail stent in the recovery room over one hour by gravity. Patients were followed with serial endoscopy and ureteroscopic treatment of recurrent urothelial tumors every 3-6 months.

Results: Out of 82 patients with UTT treated ureteroscopically, a total of 13 high risk patients (6 men and 7 women) underwent ureteroscopic treatment of large volume, multifocal disease with IR-MMC therapy. The mean age was 71.5 years. 46.2% of patients had solitary kidney and 30.8% had bilateral tumors. On initial endoscopy, 11 (84.6%) patients had low-grade disease, and 2 (15.4%) patients had high-grade

disease. The overall tumor recurrence rate was 60.5%. IR-MMC was instilled 40 times without side effects or complications. Out of the 11 patients with low-grade disease; 4 (36.4%) patients had no tumor on most recent endoscopy, 6 (54.5%) patients had significantly less tumor volume in subsequent treatments and 1 (9.1%) patient progressed to high-grade disease. All patients with high-grade disease progressed to metastatic disease at a mean of 14.2 months. There was no statistically significant difference between pretreatment creatinine (1.6 mg/dL) and post-treatment creatinine (1.9 mg/dL) at a mean follow-up time of 31.5 months.

Conclusion: Instillation of IR-MMC is safe and may aid in the ureteroscopic treatment of large volume, multifocal UTT in high risk patients that are poor surgical candidates for nephroureterectomy. Our series underscores the need for strict tumor surveillance and long-term patient commitment given the moderate risk of recurrence and small risk of progression.

UP.024

Retroperitoneal Laparoscopic Adrenalectomy: Single Center Experience Wang J^{1,2}, Huan S^{1,3}, Chiu A⁴

¹Dept. of Urology, Chi Mei Medical Center, Tainan, Taiwan; ²Dept. of Biomedical Engineering, National Cheng Kung University, Tainan, Taiwan; ³Graduate Institute of Medical Research, Taipei Medical University, Taipei, Taiwan; ⁴College of Medicine, National Yang Ming University, Taipei, Taiwan

Introduction and Objectives: Laparoscopic adrenalectomy is an attractive alternative to the traditional open approach in the surgical excision of an adrenal gland. It has replaced open adrenalectomy in our institution since 2001. In our institution, retroperitoneal method has replaced transperitoneal method in recently years. So we review our experience about retroperitoneal laparoscopic adrenalectomy to date.

Materials and Methods: All cases of retroperitoneal laparoscopic adrenalectomies in our hospital over six years (from 2007 to May 2011) were retrospectively reviewed. Patient demographics (Age, BMI, gender), pathology, histology, length of hospital stay, post-surgery anesthetic dosage and all operative and post-operative details were evaluated.

Results: One hundred and five retroperitoneal laparoscopic adrenalectomies (LA) were performed on 102 patients over 4 years. The mean age was 52 years old (Range 23-81 years) with male to female ratio 1:1. Forty four cases had a right adrenalectomy, 55 had a left adrenalectomy and the remaining three patients had bilateral adrenalectomies. A hundred percent were successfully completed laparoscopically with one post operation

re-check bleeding. Adenomas (functional and nonfunctional) were the leading indication for LA, followed by pheochromocytomas. Other indications for LA included Cushing's disease, adrenal malignancies and rare pathologies.

Conclusions: Retroperitoneal laparoscopic adrenalectomy is effective for the treatment of adrenal tumors, fulfilling the criteria for the ideal minimally invasive procedure. It has replaced the traditional open approach and transperitoneal method in our center and is a safe and effective alternative.

UP.025

Long-Term Results of Laparoscopic Partial Nephrectomy with Radiofrequency Ablation Kalpinskiy A, Alekseev B, Andrianov A, Nyushko K, Vorobyev N, Polyakov V, Kaprin A Moscow Hertenzen Oncology Institute, Moscow, Russia

Introduction and Objectives: Laparoscopic partial nephrectomy (LPN) has shown to be technically feasible and oncologically safe with better functional results. The aim of the study was to assess long-term functional and oncologic results of a new technique of LPN with radiofrequency ablation (RFA).

Materials and Methods: A total of 179 patients with small renal masses after 180 LPN were included in the study. Standard LPN was performed in 87 (48.3%) and LPN+RFA – in 93 (51.7%) cases. Mean age was 54.6±11.4 (27-75) and 55.3±11.7 (16-79) (p=0.8), in the groups of standard LPN and LPN+RFA, respectively. Mean tumor size was 33.4±11.6mm (10.0-70.0mm) in the standard LPN group and 27.9±10.5mm (11.0-80.0mm) in LPN+RFA group (p=0.0003). Mean preoperative eGFR was 76.5±19.3ml/min (38.7-142.9ml/min) in standard LPN group and 78.1±19.8 ml/min (34.1-146.3 ml/min) in LRP+RFA group (p=0.4). Monopolar Cool-tip® RF system (Covidien) with one-needle probe was used for RFA. Neither cold nor warm renal ischemia was performed in LRP+RFA group.

Results: Median follow-up time was 30 (4-129) months and 49 (4-90) months in the groups of standard LPN and LPN+RFA, respectively (p=0.02). Median blood loss and mean operating time in LPN+RFA group were 100 ml (50-200ml) and 116.9±31.1 min (75-210min) and in standard LPN group - 200ml (50-40ml) and 130.3±43.1min (60-240min), respectively (p<0.05). Long-term functional outcomes were evaluated regarding changes in eGFR. Mean eGFR decrease after 3 months after surgery was comparable and normalization of renal function was observed in both groups. In standard LPN group mean reduction of eGFR was -0.02±9.8%, in LPN+RFA group -0.36±12.8%, (p=0.9). 5-year recurrent-free survival in standard LPN group was 92.9±4.4%, in LPN+RFA group 94.5±2.9%

(p=0.11); cancer-specific and overall survival in standard LPN group was 93.6±4.3% and 93.6±4.3%, in LPN+RFA group 93.6±3.2% and 94.4±3% (p=0.63), respectively.

Conclusions: LPN with RFA is a feasible and effective treatment option for small renal masses, which eliminates the need renal ischemia. Performed in selected patients it shows good long-term results, comparable to standard LPN.

UP.026

Long-Term Results and Prognostic Factors in Patients with Locally-Advanced Renal Cell Carcinoma

Kalpinskiy A, Alekseev B, Nyushko K, Vorobiev N, Priadilova E, Kaprin A
Moscow Hertenzen Oncology Institute, Moscow, Russia

Introduction and Objectives: Despite the increasing incidence of localized renal cell carcinoma (RCC) up to 20-25% of patients are still diagnosed with locally-advanced RCC. The aim of the study was to compare long-term results of surgical treatment of pT3a and pT3b RCC patients and to assess influence of pathomorphological factors on recurrent-free (RFS) and cancer-specific survival (CSS).

Materials and Methods: Database of 1029 RCC patients undergone surgical treatment at Moscow Hertenzen Oncology Institute since 1993 till 2012 was analyzed. In the study 115 (13.4%) pT3a and 37 (3.6%) pT3b patients were included. Statistical analysis was performed with Statistica 8 software.

Results: Median follow-up time was 42.5 months (2-225) in pT3a group and 41 months (2-206) in pT3b group, respectively. Disease recurrence was identified in 29 (21.0%) pT3a patients and in 17 (45.9%) pT3b patients (p=0.02). 16 (11.6%) pT3a and 8 (21.6%) pT3b patients died due to disease progression (p=0.3). Five-year RFS in pT3a and in pT3b group was 69.8% and 49.8%, respectively (p=0.04). Five-year CSS in pT3a and in pT3b group was 83.5% and 72.9%, respectively (p>0.05). In patients with pT3b disease tumor size (R=0.26), presence of sarcomatoid differentiation (R=0.23), presence of necrosis (R=0.3) were predictors of recurrence and death due to disease progression (p<0.05). Cox analysis revealed that presence of necrosis and sarcomatoid differentiation were predictors of RFS and CSS in pT3a patients. No significant correlation was found between vascular invasion, pN+ stage, Fuhrman grade, number of tumors and histological type of tumor (p>0.05).

Conclusions: Five-year RFS in pT3a patients was 69.8% and in pT3b patients – 49.8% respectively (p=0.04). Five-year CSS were similar in both groups (p=0.26). Presence of necrosis and sarcomatoid differentiation were predictors of outcome in pT3a patients.

UP027

Long-Term Results of Treatment of Patients with Brain Metastases of Renal Cell Carcinoma

Kalpinskiy A, Alekseev B, Zaitsev A, Kurzhu-pov M, Nyushko K, Kirsanova O, Kaprin A
Moscow Herten Oncology Institute, Moscow, Russia

Introduction and Objectives: Among patients (pts) with renal cell carcinoma (RCC) intracranial metastases (mts) are diagnosed in 2-17%. Target therapy is not usually effective in this case. Surgery is the most frequent method to be applied. The aim of our study was to evaluate overall (OS), cancer-specific (CSS) and progression-free survival (PFS) of RCC pts with brain mts and assess prognostic factors of survival.

Materials and Methods: We included in the study 28 pts with metastatic RCC after surgery for brain mts since 2009 till 2013. Mean age was 56.4±8.6 years (43-75). Subtentorial localization of mts was observed in 6 (21.4%) pts, in 22 (78.6%) pts lesions were diagnosed in hemisphere of the brain. Extracranial mts were diagnosed in 18 (64.3%) pts. Single intracranial mts were diagnosed in 22 (78.6%), two mts were found in 5 (17.8%) and 1 (3.6%) - with 4 intracranial mts. Median Karnofsky performance status was 70% (60-80%) pts. Statistical analysis was performed with Statistica 8 software.

Results: Target therapy was administered in 18 (64.3%) pts, whole brain irradiation or stereotactic radiosurgery was applied in 4 (14.3%) pts. No additional treatment was done in 4 (14.3%) pts. Median follow-up time was 8 (2-71) months. PD was diagnosed in 7 (25%) pts. Death was observed in 11 (39.3%) pts; death due to PD was diagnosed in 9 (32.1%) pts. Reoperations for intracranial tumor progression were performed in 5 (17.8%) cases due to appearance of new lesions. Only 2 (7.1%) pts died due to intracranial PD. Median PFS was 6 (2-58) months. Median OS and CSS were 8 (2-71) months. Cox regression analysis revealed statistically significant correlation between extracranial mts ($p=0.038$), completeness of brain mts removed ($p=0.048$); number of brain mts ($p=0.05$) and CSS. A trend to improving of OS was found in pts with absence of extracranial mts ($p=0.09$).

Conclusions: Surgical treatment of metastatic RCC with solitary brain mts improves quality of life in this poor prognostic group of pts and creates conditions for further treatment.

UP028

The Neoplastic Retroperitoneal Fibrosis: About 21 Cases

Fourati M, Hadj Slimen M, Chaabouni A, Rebai N, Touaiti T, Bouacida M, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: The neoplastic

retroperitoneal fibrosis (NRPF) is a metastatic invasion of the retroperitoneum by a fibrous tissue containing malignant cells. The object of our study is to analyse clinical features and different therapy application and evaluate the prognosis of this pathology.

Materials and Methods: Our study is retrospective, about 21 patients who were treated for NRPF during a period of 28 years (1985-2013).

Results: The average age was 52 years (38 to 72 years). There was slight women predominance with a sex ratio of 0.63. The causal neoplasia was cervical neoplasia in 9 cases, ovary neoplasia in 2 cases, digestive neoplasia in 8 cases and breast neoplasia in 2 cases. Clinical symptoms were lumbar pain in 14 cases, obstructive anuria in 5 cases, and macroscopic hematuria in 2 cases. Imaging made diagnosis in all cases. Drainage of urine was realized by percutaneous nephrostomy (9 cases), surgical nephrostomy (4 cases), and retrograde catheterization by double J stent (8 cases). Palliative treatment was indicated for 14 patients. 12 patients were surviving after a mean follow-up of 6 months.

Conclusion: NRPF is a severe disease with no specific symptoms. Imaging makes the diagnosis, localizes a possible primitive neoplasia and evaluates the effect on the upper urinary tract. Treatment is palliative in the most of the cases.

UP029

The Extra-Adrenal Pheochromocytoma: About Four Cases

Fourati M, Hadj Slimen M, Rebai N, Touaiti T, Hamza M, Bouacida M, Smaoui W, Mhiri M

CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: The extra-adrenal pheochromocytoma is a neuroendocrine tumor of ectodermal origin, arising from chromaffin tissue. In 90% of cases pheochromocytoma is located at the suprarenal gland and in 10% it is extra-adrenal. In the latter case, it can be located at the paravertebral sympathetic ganglion chain. Through this report, we propose to show the clinical, radiological and therapeutic aspects of these tumors.

Methods and Materials: Our study is retrospective. We have collected four patients operated in our department for ectopic pheochromocytoma.

Results: All patients were female with an average age of 34 years (17-71 years). The tumor was precaval in two cases, lateroaortic in one case and at the right renal pedicle in one case. The average tumor diameter was 65mm (30-120mm). The revelation was typical in all cases, with headaches, paroxysmal flushing and hypertension. The diagnosis was suggested by the Metanephrine assay and the CT which showed a retroperitoneal tissue-density tumor, enhanced early and heterogeneously after

injection of contrast dye. A MRI performed in one case had objectified a retroperitoneal lesion of the renal pedicle which was T1 isointense and T2 hyperintense, enhanced after gadolinium injection. The hormone assays revealed an increase of methoxylated derivatives in all cases. The diagnosis was confirmed by histological examination of the surgical specimen. After medical preparation, all patients were operated and a complete excision of the tumor was performed without incident, excepting some hypertensive peak and tachycardia during the handling of the tumor. The outcome was favorable in all cases with no complication or recurrence, for a mean period of 25months of follow-up (11-49 months).

Conclusion: Extra-adrenal pheochromocytomas are rare. Diagnosis should be considered when we have a clinical and biological pheochromocytoma with no adrenal tumor. CT and MRI can often locate these tumors; otherwise, MIBG scintigraphy is indicated. The treatment is surgical, the long-term follow-up is mandatory.

UP030

Open Partial Nephrectomy versus Laparoscopic Radical Nephrectomy: A Matched Pair Analysis of Peri-Operative Complications, Mid-Term Morbidity and Oncological Outcomes

Gallagher K^{1,2}, Grossart C², McClean K², O'Connor K¹, Riddick T¹, McNeill A¹, Stewart G^{1,2}

¹Dept. of Urology, Western General Hospital, Edinburgh, UK; ²University of Edinburgh, Edinburgh, UK

Introduction and Objectives: Open partial nephrectomy (OPN) and laparoscopic radical nephrectomy (LRN) have never to our knowledge been directly compared. We aimed to determine if there were differences in peri-operative complications, long-term morbidity, survival and oncological outcomes between OPN and LRN by way of a matched pair analysis.

Materials and Methods: We retrospectively reviewed all partial nephrectomies performed at a single institution. We then matched T1a-b OPNs with elective/relative indication to T1a-b LRNs for age, gender, tumour size, T, N and M stage, histological subtype and pre-operative CKD, then compared outcomes.

Results: Results are summarized in Table 1. From 113 OPNs and 1124 LRNs performed between 1996 and 2013, 36 OPNs were matched to 36 LRNs. OPN was associated with more clavian grade 1 (but not grade 2 or more) complications, significantly higher blood loss, significantly higher positive margin rate, significantly longer length of stay and significantly higher non-renal mid-term morbidity. The rate of 1 stage CKD advancement was significantly higher in the LRN group (17 vs. 4 RR4.0 95%

CI1.5-10.8 $p=0.001$). Zero OPNs and 5 LRNs had 2-stage CKD advancement. There was no significant difference in mid-term mortality or recurrence although at one-year follow-up, 2 LRNs had recurrence versus 0 OPNs.

Conclusion: In otherwise identical patients with T1 RCC managed with OPN or LRN there are more minor peri-operative complications, longer length of stay and significantly higher risk of mid-term morbidity with OPN. Whilst LRN has 4-fold higher rates of long-term CKD this did not correspond to reported morbidity. In the face of equivalent oncological outcomes, the balance of NSS versus RN may move towards RN in some cases of T1 RCC when the two options available are *open* nephron surgery (NSS) versus *laparoscopic* radical nephrectomy (RN) as opposed to the two open approaches examined in the only RCT of NSS versus RN.

UP031

Establishment of Andrological Services in Remote Regions of the Russian Federation

Aliev R¹, Neimark A², Subbotin E², Nasedkina T¹

¹Andrology Center of Altai Region, Barnaul, Russia; ²Dept. of Urology, Altai State Medical University, Barnaul, Russia

Introduction and Objectives: The profession of “an andrologist” has no legal recognition in Russia and most other foreign countries, there are no unified standard of teaching concerning this profession, there is no clear definition of an andrologist’s competence, that is why it is urgent to organize a system of measures aimed at creation and development of an andrological service. As a result of orderly andrological service system absence, the occurrence of andrological diseases in Siberia is 1.5 times higher than the average in Russia.

Materials and Methods: Medical (physical examination of patients, clinical and biochemical investigation of blood, urine, ejaculate examination, estimation of antioxidant system status, transrectal ultrasound of prostate, Doppler ultrasonography of penis with an intracavernous pharmacological test, laser Doppler fluometry of prostate and penis); sociological (questioning, expert poll); statistical.

Results: Unfavorable demographic situation in Siberia, Russia, during the last 6 years has resulted in decrease in male population by 60,000 people, and occurrence of andrological diseases in this region is 91.3% higher than the average in Russia. All that demands to establish an andrological service. Under the conditions of a new andrological service based on a modular approach, it has been proved that: 1) the most effective treatment of vasculogenetic erectile disorder was based on pelotherapy and pharmacotherapy by minute doses of antibodies to nitric oxide synthase, the results appeared in normalization of penis haemodynamics rates and increase in male copulative function rate by 1.5 times; 2) maximum effect was reached when the scheme was supplemented with a complex treatment of chronic abacterial prostatitis by pelotherapy, vibrothermomagnetic therapy and minute doses of antibodies to PSA (haemodynamics rates and antioxidant prostate status normalized, life quality according to SOS-HP scale improved 5.5 times); 3) the use of pelotherapy for male sterility treatment normalized the ejaculate antioxidant status and increased its fertility 4.1 times. The establishment of the andrological center was followed by increase in aid appealability by 3.6 times during the last 4 years, the number of examinations increased 3.7 times, detectability of andrological diseases increased 4.2 times, treatment efficiency increased 1.9 times, therapists’ andrological suspicion rose 2.5 times. All that shows higher effectiveness of andrological help under the conditions of the new model based on a modular approach in Siberia, Russia. To optimize the work of andrological service an original software product has been created – A Computer-aided Work Place of an Andrologist, some recommendations have been also put forward to establish a telemedical andrological net in Siberia adjusted for its peculiarities.

Conclusions: Andrological diseases prevalence in Siberia, Russia, has been studied, modern approaches to their treatment have been worked out under conditions of modular componentry of andrological service.

UP032

Efficacy of Fesoterodine on Nocturia and Quality of Sleep in Patients with Overactive Bladder

Takeda H, Nakano Y, Narita H

Dept. of Urology, Tosei General Hospital, Aichi, Japan

UP.030, Table 1.

| | Matched OPNs (% or Median+IQR) | Matched LRNs (% or median+IQR) | p-value for matched pairs |
|--------------------------------------|-----------------------------------|-----------------------------------|------------------------------|
| All | 36 | 36 | |
| Operative | | | |
| Operation time | 142.5 (100 – 210) | 140.0 (70 – 210) | NS |
| Blood loss | 346.4 (50-800) | 145 (50–100) | 0.02 |
| Transfusion | 0 | 0 | - |
| Positive margins | 5 (13.9) | 0 | 0.02 |
| Complications | | | |
| None | 13 (36.1) | 22 (61.1) | 0.04 |
| Clavien I | 9 (25.0) | 4 (11.1) | 0.06 |
| Clavien II | 12 (33.3) | 10 (27.8) | NS |
| Clavien III | 1 (2.8) (urine leak) | 0 | NS |
| Clavien IV | 0 | 0 | - |
| Clavien V | 0 | 0 | - |
| Long term morbidity | 12 (33.3) | 1 (2.8) | 0.003 |
| Median length of stay day | 7 (5-7.25) | 4 (3-5) | 0.01 |
| Recurrence | | | |
| Median follow-up (months) | 38 (2, 136) | 61.7 (8, 132) | 0.002 |
| Rate | 1 (2.8) | 3 (8.3) | 0.63 |
| Time to recurrence | 39 months | 7,7 and 47 months | - |
| Mortality | | | |
| All cause | 2 (5.6) | 4 (11.1) | 0.38 |
| Cancer specific mortality | 0 | 0 | - |
| Post-op survival (months, each case) | 45,57 | 25,42,8,64 | - |
| CKD | | | |
| Pre op | 4 (11.1) | 4 (11.1) | NS |
| ≥1 stage advancement | 4 (11) | 17 (47) | 0.001 |
| 2 stage advancement | 0 | 5 (13.9) | 0.06 |

Introduction and Objectives: To examine the effect of Fesoterodine for not only overactive bladder symptoms but also sleep disturbance. Nocturia and urgency are independent factors for sleep disturbance.

Materials and Methods: A total of 38 patients with overactive bladder symptoms and sleep disturbance were enrolled in this study. The overactive bladder symptoms score (OABSS), Athens insomnia scale (AIS) KHQ, N-QOL and Bother Index:VAS were used as a subjective questionnaire for overactive bladder symptoms and insomnia. We evaluated the changes of each parameter before and 2 to 4 to 12 weeks after the administration of fesoterodine 4 mg per day. Statistical comparisons before and after the administration were made using the Wilcoxon signed-rank test. To examine the relation between OABSS and AIS, Spearman's testing was used for correlations between independent variables and $P < 0.05$ was considered statistically significant.

Results: Total OABSS and total IPSS were significantly improved and obtained an early effect after administration of Fesoterodine (OABSS: $8.4 \pm 2.9 \rightarrow 6.3 \pm 2.7 \rightarrow 5.9 \pm 2.7$; IPSS: $17.6 \pm 7.1 \rightarrow 13.2 \pm 6.6 \rightarrow 11.8 \pm 6.1$). Seventy nine percent of patients were under sleep disturbance before treatment in AIS. The categories of urgency and nocturia in OABSS and the categories of awakening during the night and sleep quality in AIS were also significantly improved. The AIS showed that total sleep time and Functioning (physical and mental) during the day were significantly improved. Hours of undisturbed sleep was significantly longer with fesoterodine 4 mg, improvement in King's Health Questionnaire Sleep/Energy scores was significantly greater.

Conclusion: These results suggest that fesoterodine may reduce nocturnal micturitions and improve sleep quality and QoL in overactive bladder patients with nocturia.

UP.034

Comparison Regarding Nocturia between Data from Questionnaire and Frequency-Volume Charts

Muraoka K¹, Honda M¹, Hirano S¹, Kawamoto B¹, Shimizu S², Panagiota T¹, Hikita K¹, Saito M², Sejima T¹, Takenaka A¹

¹Tottori University, Yonago, Japan; ²Kochi University, Kochi, Japan

Introduction and Objectives: In addition to the International Prostate Symptom Score (IPSS), the patient-completed frequency-volume chart (FVC) is also commonly used in clinical trials as a primary tool for measuring subjective signs related to the lower urinary tract. It has been noted that there are relevant differences in questionnaire-based estimates of nocturia and nocturia values derived from FVCs. Therefore, the present study was

conducted to compare nocturia, as estimated by the IPSS and a 3-day FVC, and identify factors that correlate with nocturia.

Materials and Methods: A total of 210 patients, referred for the evaluation of lower urinary tract symptom (LUTS) to our hospital, were analysed. At the initial visit, all patients answered IPSS questionnaire and subsequently were requested to complete a 3-day FV chart. IPSS-FVC was defined as IPSS calculated from the FVC. Patients were categorized into three groups: Group A patients, who underestimated the nocturia number in the IPSS; Group B patients, who estimated the nocturia number in the IPSS and IPSS-FVC equally; and Group C patients, who overestimated the nocturia number in the IPSS.

Results: In total, 64 patients (37 men, 27 women; mean age 67.9 years, range 26-87 years) were eligible for evaluation. In Groups A, B, and C, the mean nocturia scores of IPSS Q7 and IPSS-FVC Q7 were 2.4 ± 1.3 and 3.5 ± 1.5 , 3.2 ± 1.5 and 3.2 ± 1.5 , and 2.8 ± 1.4 and 1.3 ± 1.1 , respectively. Group C patients had significantly lower nocturnal urine volume (NUV) ($P = 0.006$) and nocturnal polyuria index (NPi) ($P = 0.013$) than Group B patients. A significant correlation was found between the score of IPSS Q7 minus IPSS-FVC Q7 and NUV ($r = -0.304$, $p = .014$), and between the score of IPSS Q7 minus IPSS-FVC Q7 and NPi ($r = -0.344$, $p = 0.005$).

Conclusion: The present results suggest that the FVC should be included as an integral part of the evaluation for nocturia, and the IPSS questionnaire and FVC may complement each other to obtain more accurate evaluation of nocturia.

UP.035

Is Type 2 Diabetes Mellitus Associated with Overactive Bladder Symptoms in Men with Lower Urinary Tract Symptoms?

Bang W¹, Yoo C¹, Cho J¹, Han J¹, Lee Y¹, Ko K¹, Yang D¹, Lee W¹, Cho K²

¹College of Medicine, Hallim University, Chuncheon, South Korea; ²Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objectives: To elucidate the relationship between type 2 diabetes mellitus (DM) and overactive bladder symptoms in men with lower urinary tract symptoms (LUTS), after adjusting for the impact of age and prostate volume.

Materials and Methods: Data were obtained from a prospectively maintained database of 905 first-visit patients with LUTS/BPH. After excluding those with comorbidities that may affect urinary symptom, we selected 139 patients with type 2 DM and 139 non-diabetic controls, matched by propensity scoring for age and prostate volume.

Results: There were no differences in voided volume and maximal flow rate between the two groups, whereas residual urine volume was significantly higher in DM patients than controls (29.34 ± 26.99 mL vs. 22.45 ± 23.25 mL, $p = 0.028$). The total International Prostatic Symptom Score was significantly higher in DM patients than controls (17.80 ± 7.60 , 15.88 ± 7.05 , $p = 0.031$). Storage (7.45 ± 3.21 vs. 6.58 ± 3.11 , $p = 0.024$) and post-micturition (2.57 ± 1.49 vs. 2.19 ± 1.59 , $p = 0.045$) symptom scores were higher in DM patients than controls, whereas the groups had similar voiding symptom scores ($p = 0.104$). Among storage symptoms, DM patients had higher frequency ($p = 0.010$) and nocturia ($p = 0.003$) scores, but similar urgency scores. The Overactive Bladder

UP.035, Table 1. Differences in IPSS questionnaire results between the diabetic and control groups

| | Diabetic group | Control group | P-value |
|--|------------------|------------------|---------|
| Number of patients | 139 | 139 | - |
| Total IPSS score | 17.80 ± 7.60 | 15.88 ± 7.05 | 0.031 |
| Voiding symptom score | 7.90 ± 4.17 | 7.11 ± 3.84 | 0.104 |
| Interruption | 2.49 ± 1.64 | 2.14 ± 1.64 | 0.082 |
| Weak stream | 3.21 ± 1.54 | 3.04 ± 1.50 | 0.339 |
| Hesitancy | 2.20 ± 1.65 | 1.93 ± 1.56 | 0.167 |
| Storage symptom score | 7.45 ± 3.21 | 6.58 ± 3.11 | 0.024 |
| Frequency | 2.71 ± 1.47 | 2.27 ± 1.34 | 0.010 |
| Urgency | 2.25 ± 1.45 | 2.26 ± 1.46 | 0.951 |
| Nocturia | 2.49 ± 1.18 | 2.06 ± 1.20 | 0.003 |
| Post-micturition symptom score | 2.57 ± 1.49 | 2.19 ± 1.59 | 0.045 |
| Quality of life | 3.88 ± 1.13 | 3.64 ± 1.13 | 0.087 |
| Data are mean \pm standard deviation | | | |
| IPSS, International Prostate Symptom Score | | | |
| P-value for Student or Welch two sample t-test | | | |

UP.035, Table 2. Differences in OABSS questionnaire results between the diabetic and control groups

| | Diabetic group | Control group | P-value |
|--|----------------|---------------|---------|
| Number of patients | 139 | 139 | - |
| Diagnosis of OAB | 71 (53.0%) | 65 (47.8%) | 0.394* |
| Total OABSS score | 5.62±3.40 | 4.54±3.06 | 0.006† |
| Daytime frequency | 0.60±0.56 | 0.52±0.54 | 0.240† |
| Nocturia | 2.14±0.91 | 1.71±0.93 | <0.001† |
| Urgency | 1.94±1.62 | 1.60±1.50 | 0.077† |
| Urge incontinence 0.94±1.47 0.71±1.21 0.155† | | | |
| OABSS, Overactive Bladder Symptom Score * P-value by chi-square test, † P-value by Student or Welch two sample t-test | | | |

Symptom Score was also significantly higher in DM patients; this difference was due to a higher nocturia (but not urgency) score.

Conclusion: DM patients with LUTS/BPH had greater storage and post-micturition symptoms than age and prostate volume-matched controls. The disparity in storage symptoms was mainly due to frequency and nocturia, rather than urgency.

UP.036**Health Care Service Utilization among Patients with Bladder Pain Syndrome/ Interstitial Cystitis in Taiwan**

Wu W¹, Chung S¹, Li H², Lin H²

¹Dept. of Surgery, Div. of Urology, Far Eastern Memorial Hospital, Ban Ciao, Taipei, Taiwan;

²School of Health Care Administration, Taipei Medical University, Taipei, Taiwan

Introduction and Objectives: This study aims to investigate the differences in the utilization of healthcare services between patients with bladder pain syndrome/interstitial cystitis (BPS/IC) and patients without using a

population-based database in Taiwan.

Materials and Methods: This study comprised of 350 patients with BPS/IC and 1,750 age-matched controls. Healthcare resource utilization was evaluated in the one-year follow-up period as follows: number of outpatient visits and inpatient days, and the mean costs of outpatient and inpatient treatment. A multivariate regression analysis was used to evaluate the relationship between BPS/IC and total costs of health care services.

Results: For urological services, patients with BPS/IC had a significantly higher number of outpatient visits (2.5 vs. 0.2, $p<0.001$) as well as significantly higher outpatient costs (\$US166 vs. \$US6.8, $p<0.001$) than the controls. For non-urologic services, patients with BPS/IC had a significantly high number of outpatient visits (35.0 vs. 21.3, $p<0.001$) as well as significantly higher outpatient costs (\$US912 vs. \$US675, $p<0.001$) as compared to the controls. Overall, patients with BPS/IC had 174% more outpatient visits and 150% higher total costs than the controls. Multiple-regression-analyses also showed that the patients with BPS/IC had

significantly higher total costs for all healthcare services than the controls.

Conclusion: This study found that patients with BPS/IC have a significantly higher number of healthcare related visits, and have significantly higher healthcare related costs than age-matched controls. The high level of healthcare services utilization accrued with BPS/IC was not necessarily exclusive for BPS/IC, but may have also been associated with medical co-morbidities.

UP.037**The Correlation Postmicturition Dribbling between LUTS and Prostatic Parameter**

Kim H¹, Kim J¹, Chang Y¹, Kim H¹, Kim H²

¹Dept. of Urology, Konyang University College of Medicine, Daejeon, South Korea; ²Dept. of Urology, Dankook University College of Medicine, Cheonan, South Korea

Introduction and Objectives: Postmicturition dribbling is one of the bothersome symptoms for men with benign prostatic hyperplasia. They soak clothes. Kegel exercises and bulbar massage would improve their symptom or take a long time lasting. Ever the reason for the postmicturition dribbling, and yet the point is not enough research. In one complained of lower urinary tract symptoms in patients with prostate transrectal ultrasound of the measured parameters were analyzed for correlation between the symptoms and parameter.

Materials and Methods: The records were obtained from a prospectively maintained database for first-visit men with lower urinary tract symptoms in our hospital. International Prostate Symptom Score, terminal dribbling and postmicturition dribbling were assessed. The prostate-related parameters, including prostate volume, PUA, and intravesical prostatic protrusion, were measured using transrectal ultrasonography.

Results: From December 2013 to February 2014, 27 male patients with LUTS were

UP.037, Table 1. Mean of IPSS and Terminal Dribbling and Post-Micturition Dribbling

| IPSS | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | QoL | Terminal dribbling | Postmicturition dribbling |
|------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------|---------------------------|
| Mean | 2.1±1.7 | 2.3±1.5 | 2.0±1.5 | 1.7±0.9 | 3.0±1.6 | 1.8±1.6 | 1.9±1.2 | 3.4±1.6 | 2.2±1.4 | 1.4±1.2 |

UP.037, Table 2. Questionnaire of Terminal Dribbling and Postmicturition Dribbling

| In the past month | Not at All | Less than 1 in 5 Times | Less than Half the Time | About Half the Time | More than Half the Time | Almost Always |
|---|------------|------------------------|-------------------------|---------------------|-------------------------|---------------|
| Terminal dribbling How often have you found urine dribbles slowly towards an end? | 0 | 1 | 2 | 3 | 4 | 5 |
| Postmicturition dribbling How often have you found urine continues to leak after micturition? | 0 | 1 | 2 | 3 | 4 | 5 |

enrolled. Mean age of LUTS patients was 61.1 ± 10.3 years old. Mean of postmicturition dribble score was 1.4 ± 1.2 point. The results of mean score of IPSS were described (Table 1). If postmicturition defined as 1 more point, the prevalence of postmicturition dribbling was 77.8%. If postmicturition dribbling was defined as less than 1 in 5 times, prevalence of postmicturition dribbling was 40.7%. On student t-test analysis, the terminal dribbling ($p=0.01$) and prostatic width ($P=0.04$) was correlated with postmicturition dribbling.

Conclusions: Postmicturition dribbling was common symptom. It was correlated with prostatic parameter and urinary symptoms as terminal dribbling. It is needed further large-scale study for the prevalence and correlations of symptoms and prostatic parameter in the LUTS patients.

UP038

Effect of Double-J Stent during 3 Days after Ureteroscopic Lithotripsy

Seo Y, Lee K, Kim K

Dept. of Urology, Dongguk University Medical Center, Gyeongju, South Korea

Introduction and Objectives: Ureteroscopic lithotripsy (UL), for renal or ureteral stones, is a standard technique for every urologist. However, the length of time the double J (DJ) stent needs to be kept in postoperatively is still controversial. This study investigated double-J stenting during 3 days after UL affects postoperative adverse events, especially infection and pain, compared with D-J stenting during 7 days.

Materials and Methods: Sixty patients were enrolled in this study and data were analyzed prospectively between Aug. 2012 and Jan. 2013. Patients were classified into two groups: patients with D-J stenting during 3 days after UL were assigned to Group 1, and those with during 7 days were assigned to Group 2 in terms of IPSS, visual analog pain score, febrile complications, urinalysis, and the need to give antibiotics at the time of DJ stent removal.

Results: There were no statistically significant differences between the two groups in preoperative variables (mean age: 55.82 ± 11.67 years vs. 50.58 ± 14.25 year, $p=0.149$, preOP IPSS: 9.80 ± 7.42 vs. 10.42 ± 6.78 , $p=0.749$, VAPS: 2.40 ± 2.43 vs. 2.84 ± 3.07 , $p=0.58$). And also, there were no statistically significant differences in preoperative voiding symptom and storage symptom (6.22 ± 5.46 vs. 4.08 ± 3.27 , $p=0.651$, 4.44 ± 3.76 vs. 4.75 ± 3.18 , $p=0.137$, respectively). However, postoperative storage symptom scores were lower in Group 1 than Group 2 (4.00 ± 2.17 vs. 6.40 ± 3.62 , $p=0.047$). And frequency and urgency were lower in Group 1 than Group 2 (1.57 ± 1.65 vs. 2.90 ± 1.65 , $p=0.023$, 0.29 ± 0.73 vs. 1.90 ± 1.62 , $p=0.001$). In addition, the cases with D-J stenting during 3 days after UL had no statistically significant difference in complications, compared with

those during 7 days after UL ($p=0.327$).

Conclusions: This study investigated D-J stenting during 3 days after transurethral UL decreased IPSS, such as storage symptom score, compared with during 7 days after UL. Our results demonstrated that a shorter duration (3 days) of stenting was better than longer duration (7 days) of stenting after UL.

UP040

Influence of Unilateral Orchiectomy on Contralateral Testis in Rat, Prepubertal and Postpubertal

Ahmadnia H¹, Dolati M², Khaje Daluee M³,

Kamalati A⁴, Imani M², Younesi Rostami M⁵

¹Dept. of Urology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran;

²Dept. of Urology, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran;

³Dept. of Community Medicine, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran;

⁴Dept. of Urology, Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran;

⁵Dept. of Urology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

Introduction and Objectives: The present study was conducted to investigate the influence of unilateral orchiectomy and age of orchiectomy on the subsequent contralateral testis.

Materials and Methods: A total of 64 Wistar-derived male rats were divided randomly in 4 groups. Group 1 named immature intervention, Group 2 immature control, Group 3 mature intervention and Group 4 mature control. In Group 1, rats castrated unilateral at 30 days of age (prepubertal). In Group 2 sham surgery (midscrotal incision) was done at same age. In Group 3, rats castrated unilateral at 70 days of age (postpubertal) and in Group 4 sham surgery was done at same age. Twenty days after first surgery, in intervention groups, contralateral orchiectomy was done and in control groups random orchiectomy (left or right) was done. Blood sampling for evaluation of serum testosterone was performed just before the second surgery.

Results: Testis weight and the mean testicular weight per 100 gr of body weight were greater in groups 1 and 3. These parameters were greater in prepubertal group (Group 1) than postpubertal group (Group 3). There was no appreciable difference in serum testosterone levels in 4 groups.

Conclusion: Our research demonstrated that unilateral orchiectomy resulted in compensatory hypertrophy of the remaining testis and it decreased as the animals become older. Unilateral orchiectomy doesn't lead to reduction in serum testosterone levels and remaining testis can retrieve a normal serum testosterone level.

UP041

Bladder Function Changes according to the Dosage of Tamsulosin among the Spinal Cord Injured Rats Model

Han D¹, Lee M²

¹Gun-San Medical Center, Gun-San, South Korea; ²Wonkwang University, Iksan, South Korea

Introduction and Objectives: Studies regarding the mechanism or the dosage of Alpha blocker used for neurogenic bladder after spinal cord injury are needed. In this study, change in urination and bladder contractility of spinal cord injured rats (SCIR) according to tamsulosin dosage was observed.

Methods: A total of 55 female Sprague-Dawley rats were used for the study and they were randomly divided into 4 groups: Group 1 (n=10)-normal ones, Group 2 (n=15)-SCIR+vehicle, Group 3 (n=15)-SCIR+0.1mg/kg of tamsulosin, Group 4 (n=15)-SCIR+1mg/kg of tamsulosin. Spinal cord was surgically transected during the T10 level. Tamsulosin was intraperitoneally injected two times a day (at 9 AM and 6 PM) and for a week. Awaken cystometry and the organ bath study were performed after 7 days. Medicinal reactions of the change in bladder contractility according to following factors were comparatively analyzed: acetylcholine (Ach, 10-9-10-4 M) alone, Ach with AQ-RA 741 (M2 blocker) or 4-DAMP (M3 blocker) 10-7 M pretreated.).

Results: All spinal cord injured rats showed significant decrease in the bladder function regarding awaken cystometry, compared to the control group. Micturition duration was increased with considerable amount only in the Group 3, compared to other two experimented groups ($p<0.05$). Other parameters showed no significant difference. In the organ bath study, acetylcholine-induced contractility in the SCIR groups was significantly higher than the control group. Only Group 3 showed considerable decrease in contractility by acetylcholine with 4-DAMP pretreated, among the SCIR groups.

Conclusions: These results suggest that neurogenic detrusor overactivity caused by denervation hypersensitivity after spinal injury can be decreased by adequate amount of tamsulosin injection (0.1 mg/kg), not high dose (1 mg/kg).

UP042

Is Urine Bactericidal for Uropathogens (M. Tuberculosis and E. Coli)?

Kulchavenya E¹, Alhovich O²,

Cherednichenko A²

¹Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia; ²Novosibirsk Research TB Institute, Novosibirsk, Russia

Introduction and Objectives: Urogenital tract infections are widespread. But the most common infection agent – *E. Coli* – does not obligatorily cause the disease. We supposed the presence of natural protective factors, and

to verify this hypothesis, estimated if urine has bactericidal activity for *E. Coli*, as most common infection agent for cystitis, and for *M. Tuberculosis* (Mtb), as in Siberia there is an epidemic of tuberculosis, and urogenital tuberculosis is topical problem.

Materials and Methods: We investigated urine of 4 groups: young healthy non-pregnant women without sexual activity (urine 1), young healthy non-pregnant women with sexual activity (urine 2), menopausal women (urine 3) and young healthy men (urine 4) with automated BACTEC MGIT 960 system. We studied influence of urine on 2 strains of Mtb and 2 strains of *E. Coli*.

Results: All urinalyses were normal, with 1-3 leucocytes and none erythrocytes in the field of view in microscopy as well as by deep-stick. None of the people had any urological complaints. After the exposure for 60 minutes and 24 hours the growth of *E. Coli* was obtained on blood agar in all samples. Thus, the bactericidal effect of urine of healthy persons on the *E. Coli* in concentrations of 3×10^8 , 1.5×10^8 , 1×10^8 and 0.75×10^8 microbial bodies / ml was not observed. Also there was no bactericidal effect of urine concerning Mtb and H₃₇ Rv.

Conclusion: Our hypothesis on potential bactericidal activity of health urine for *E. Coli* and Mtb *in vitro* was not confirmed. There are some other protective factors and we plan to estimate them in the future.

UP.043

The Effects of Cynodon Dactylon

L. Decoction on Calcium Oxalate

Kidney Stones in Rat

Feizzadeh K. B¹, Hajzadeh M², Mohammadian N³, Ayatollahi H³, Behbudi E⁴
¹Endoscopic and Minimally Invasive Surgery Research Center, Kidney Transplantation Complications Research Center, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ²Dept. of Physiology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ³Dept. of Pathology, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ⁴Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Urinary stone prevalence is estimated at 2-3% and different therapeutic methods are used in patients with urolithiasis such as altered nutritional habits and life style or medical and surgical interventions. Herbal medications have been used in several diseases from a long time ago and herein we have studied the role of Cynodon Dactylon boiled concentrate on calcium oxalate urinary stones in the rat.

Materials and Methods: A total of 50 rats were divided in to 5 groups. One percent distilled

water was added to the beverage water of the healthy control group. Ethylene Glycol 1% was added to the beverage water of all other groups for 4 weeks. Concentrations of 12/8 and 3/2 of boiled root extract of were used from the beginning in C1 and C2 groups and from the second week in D1 and D2 groups. A concentration of 12/8 of boiled leaf extract of Cynodon Dactylon was used from the second week in Group E. Blood and urine specimens were analyzed at the beginning and the end of study and kidneys were sent for pathological studies.

Results: Ethylene Glycole caused significant oxalate calcium crystal formation in urine of male rats but not in female rats so female rats were excluded from our study. Decreased crystal formation was observed in all treatment and prophylaxis groups compare to negative control group. Serum Citrate was increased in almost all case groups but Oxalate wasn't decreased significantly.

Conclusion: Cynodon Dactylon extract in therapeutic or prophylactic doses can significantly decrease Oxalate crystal formation in urine.

UP.044

Do On Demand Irrigation Warmers Provide an Adequate Intraoperative Rate of Irrigation for Holmium Enucleation of Prostate?

Chapman R, Halliday P

Ninewells Hospital, Dundee, UK

Introduction and Objectives: On demand irrigation warmers are widely used to provide a convenient way of irrigating warmed fluids for endoscopic procedure. However, concern has been raised that flow rates via these devices are inadequate for safe operating. Holmium enucleation of prostate (HoLEP) requires significant volume and flow rate of irrigation. Poiseuille's Law states the resistance of a tube will result in reduced flow and a reduction in pressure across the tube. The aim of this study was to compare the flow rates provided by one such warming device as compared to a standard giving set whilst simulating HoLEP and to assess the drop in pressure across both giving sets.

Materials and Methods: Simulated apparatus was set up to replicate HoLEP surgery. Simulated design rather than "real life" apparatus was used to allow for repeated testing in a more controlled environment and to avoid adding other variables due to operative and patients differences. Comparison of flow rate and pressure difference was measured whilst using a standard twin bottle irrigation set with wide bore latex free tubing (Fresenius Kabi) with pre warmed fluid and the Ranger Irrigation warming system (3M) with room temperature fluid. Pressure was measured using a pressure line passed via the working channel of the laser resectoscope.

Results: Standard giving set demonstrated lower resistance and higher flow rates. The flow

rate was 31% higher (7.2ml/s vs. 5.5 ml/s) and a lower change in pressure across the giving set during irrigation (20 cmH₂O vs. 38 cmH₂O). The resistance therefore is much higher in the Ranger irrigation system which had a much slower flow and greater drop in pressure.

Conclusion: This unique demonstration has lead to a quantitative assessment of commonly used giving sets and has shown that flow rates via a standard giving set is 31% greater than through the Ranger Irrigation warming system. This is felt to result in poor intraoperative vision and poses a potential risk to patient safety during HoLEP and other urological procedures requiring high fluid volumes.

UP.045

The Function of Glycine N-Methyltransferase in the Proliferation of Renal Cell Carcinoma

Song Y, Shiota M, Yokomizo A, Tatsugami K, Naito S

Kyushu University, Fukuoka, Japan

Introduction and Objectives: Glycine N-methyltransferase (GNMT) plays a role in the metabolism of methionine as well as in gluconeogenesis. We have recently reported that the GNMT gene acts as an oncogene. However, little is known about the specific function of GNMT in carcinogenesis and progression in renal cell carcinoma (RCC).

Materials and Methods: To better our understanding of the function of GNMT in RCC, we used siRNAs to examine the effects of GNMT knockdown on cell proliferation and the cell cycle. In addition, the expression of GNMT protein in renal cell carcinoma tissues was evaluated.

Results: We performed Western blotting analysis using normal kidney cells and a panel of RCC cells. GNMT proteins were expressed in normal kidney cell and most RCC cells. GNMT expressions were upregulated in some RCC cells, especially in SKR1 which is high grade RCC cells, compared with normal kidney cells (HEK293) and other RCC cells, especially in ACHN. In immunohistochemistry, GNMT protein was expressed in the cytoplasm of RCC cells. We found that cell proliferations of HEK293 and ACHN cells were slightly decreased by knockdown of GNMT expression transfected with GNMT-specific siRNAs, while the knockdown of GNMT expression induced apparently effect on SKR1 cell proliferation. Furthermore, the knockdown of GNMT expression transfected with GNMT-specific siRNAs in HEK293 cells led to slight increases in the G1 fraction. In contrast, GNMT knockdown in SKR1 induced prominent increases in the sub-G1 fraction, indicating cellular death. To investigate the mechanism of cellular death by GNMT knockdown, Western blotting using an antibody against cleaved PARP, which indicates the presence of degradation products from the

caspase cascade, was employed. GNMT knock-down induced cleavage of PARP in SKR1 cells.

Conclusion: This is the first investigation to reveal the novel finding that GNMT may play an important role in promoting cell growth via the regulation of apoptosis of RCC, especially high grade RCC. The modulation of GNMT expression or function may be a strategy for developing novel therapeutics for RCC.

UP046

Effect of Allogenic Periurethral Injection Adipose-Derived Stem Cells on Urethral Tissue Regeneration and Voiding Frequency for the Treatment of Stress Urinary Incontinence in a Rat Model

Rizaldi F¹, Yudiana W¹, Mahadi E¹, Alif S¹, Sandhika W², Purwati³, Hardjowijoto S¹
¹Dept. of Urology, Airlangga University, Soetomo Hospital, Surabaya, Indonesia; ²Dept. of Pathology Anatomy, Airlangga University, Soetomo Hospital, Surabaya, Indonesia; ³Institute of Tropical Disease Center, Airlangga University, Soetomo Hospital, Surabaya, Indonesia

Introduction and Objectives: We investigate the effects of allogenic adipose-derived stem cells (ADSCs) transplantation on urethral tissue regeneration (nerve regeneration, microvessel density, muscle-collagen ratio, muscle-urethral ratio and voiding frequency) after vaginal distension in a rat model.

Materials and Methods: Twenty Four female rats underwent vaginal distension (VD) for 4 hours to establish an animal model of stress incontinence. PKH2-labeled ADSCs from peri-ovary fat (2×10^5 in 200 μ l PBS, ADSC group, n=12, C groups) or PBS (200 μ l, placebo group, n=12, B groups) were injected into periurethral tissue. Six rats without vaginal distension and periurethral injection as control [A]. Periurethral nerve, muscle-collagen ratio, microvessel density and voiding frequency were measured 14 [B1,C1] and 28 [B2,C2] days after injection.

Results: The mean number of nerve regeneration by PGP 9.5 immunohistochemical staining was 5.33 ± 1.15 in A, 7.33 ± 2.94 in B1, 9.17 ± 2.22 in B2, 6.0 in C1, 13.2 ± 2.36 in C2. This data revealed significant nerve regeneration increase in 28 days ADSCs [C2] compared to placebo [B2] ($p < 0.05$). The mean number of microvessel density by Factor VII immunohistochemical was 12.0 ± 0.82 in A, 9.17 ± 1.72 in B1, 9.50 ± 1.64 in B2, 8.67 ± 1.03 in C1, 12.86 ± 2.5 in C2, there was a statistically significant higher microvessel density in 28 days ADSCs group [C2] compared to placebo [B2] ($p < 0.05$). Masson's trichome staining revealed significant difference muscle-collagen (0.75[A] vs. 0.5[B1], 0.56[B2], $p < 0.05$) or muscle-urethral ratio (0.43[A] vs. 0.33[B1], 0.35[B2]; $p < 0.05$) between control and placebo group and no significant difference between

control and ADSCs group ($p > 0.05$). Voided Stain on Paper showed significant improvement of voiding frequency in 14 days ADSCs group (1.67[B1] vs. 3.43[C1], $p < 0.0001$) with insignificant result in 28 days ADSCs group (1.67[B2] vs. 2.00[C2], $p = 0.448$) compare to placebo.

Conclusions: ADSCs injection periurethra improve nerve regeneration, microvessel density, muscle-collagen ratio, muscle-urethral ratio, and voiding frequency. This treatment could be an alternative for Stress Urinary Incontinence treatment in animal SUI model.

UP047

The New Orthotopic Locally Advanced Animal Model of Prostate Cancer

Tavares da Silva E¹, Mamede A², Castelo D¹, Guerra S³, Simões P¹, Mota A¹, Abrantes A², Botelho M²

¹Coimbra's Hospital and University Centre, Coimbra, Portugal; ²University of Coimbra, Coimbra, Portugal; ³University of Beira Interior, Covilhã, Portugal

Introduction and Objectives: Prostate cancer (PCa) is one of the most common cancers in men and is one of the leading causes of cancer related death worldwide. The development of animal models able to reproduce PCa behaviour to study the mechanisms involved in its progression is essential to improve of the strategies of diagnosis and therapy. The orthotopic transplantation of human cancer cells in rodents, compared with the heterotopic option, leads to the development of PCa in animals with more similar behaviour to human cancer. However, one of the major problems with these models is the lack of metastatic capacity.

Materials and Methods: This study was performed with PC3, a PCa cell line androgen and estrogen independent, obtained from ATCC. For orthotopic inoculation of PCa cell line, Balb/c nu/nu nude male mice (6-8 weeks) were used. After anesthesia, animals underwent surgery in order to inoculate 15×10^6 cells/animal. Two different types of inoculation were made: in the dorso-lateral portion of the prostate gland (completely orthotopic) and in the seminal vesicles (locally advanced model). It was performed a daily behavioral evaluation of the rats and a weekly body weight measurement.

Results: In the completely orthotopic animals there was no macroscopic tumor formation after 1, 4 or 8 months. However, in locally advanced model, a macroscopic tumor was observed in the seminal vesicles 3 weeks after surgery, as well as secondary liver lesions.

Conclusion: Through this study it is confirmed that the microenvironment is critical for *in vivo* PCa development. In fact, it appears that seminal vesicles microenvironment, which is rich in mitogenic factors, is favorable to the development of this type of cancer. The development

of this variant of orthotopic model, which simulates a locally advanced stage, resulted in local disease as well as a metastatic process. This behavior resembles what we know from the human cancer. Further studies are necessary to better characterize this animal model.

UP048

Micro RNA 100, 145 and 373 in Prostate Cancer: From Gene Regulation to Apoptosis

Iscaife A, Morais D, Reis S, Viana N, Katz B, Moura C, Dip N, Srougi M, Leite K
 University of Sao Paulo School of Medicine, Sao Paulo, Brazil

Introduction and Objectives: Micro RNA (miRNA) is a class of non-coding RNA responsible for the expression control of at least 30% of human genes. They regulate important cell processes such as proliferation, migration and apoptosis and have been related to the development and progression of cancer. Recent studies by our laboratory imply some miRNAs in the progression and biochemical recurrence of prostate cancer (PCa). Our aim is to study target genes of miRNAs 100, 145 and 373 and its role in apoptosis in PCa cell lines.

Materials and Methods: miRNAs 100, 145 and 373 and their respective anti-miRNA were transfected in cell lines DU145 and LNCaP using lipid based assay. RT-PCR was used for the analysis of the expression of genes mTOR, SMARCA5, KRAS, cMYC, MMP9 and CD44. Apoptosis was assessed by flow cytometry. The Student t test was used with a significance level of 5%.

Results: miR100 significantly increased apoptosis in LNCaP ($p = 0.020$). In contrast, there was an inhibition of apoptosis in DU145 ($p = 0.004$) and a reduction in the expression SMARCA5 ($p = 0.024$). Mir145 has not affected apoptosis in LNCaP but increased apoptosis in DU145 ($p = 0.008$). This microRNA leading to a reduction in the expression of KRAS ($p = 0.015$) and cMYC ($p = 0.001$) in DU145 and LNCaP ($p = 0.004$ and 0.015 respectively). miR373 promoted inhibition in apoptosis in DU145 ($p = 0.041$), increased the expression of MMP9 in DU145 ($p = 0.016$) and LNCaP (0.004) and reduced CD44 in DU145 ($p = 0.031$).

Conclusion: miR100 could be considered a context dependent miRNA while acts as a tumor suppressor in LNCaP (castration-sensitive), and as an oncomiR in DU145 (castration-resistant). miR145 is a tumor suppressor miRNA negatively regulating KRAS and cMYC, increasing apoptosis. miR373 acts as an oncomiR, through the induction of MMP9 and inhibition of CD44, also inhibiting apoptosis in androgen-independent cell line. The understanding of the role of these miRNAs in PCa might bring the possibility to use them as tumor markers and inspire the development of target drugs.

UP049

Evaluation of Oxidative Stress in Patients with Prostate Cancer, Benign Prostatic Hyperplasia and Asymptomatic Inflammatory Prostatitis Diagnosed

Kaya E, Ozgok I, Eken A, Bedir S, Erdem O, Ebiloglu T, Ergin G

Gulhane Military Medical Academy, Ankara, Turkey

Introduction and Objectives: Prostate cancer is the most common type of cancer in man. As a result of prostate biopsy or transurethral resection of the prostate in addition to prostate cancer, benign prostatic hyperplasia (BPH) or asymptomatic inflammatory prostatitis (AIP) is often seen as pathological diagnoses.

Materials and Methods: It is known that, severe oxidative stress start with the carcinogenesis initiated by DNA damage. The change in antioxidant enzymes, contributes to this process. In our study, prostate cancer, BPH, AIP and in control group peripheral blood samples were collected to evaluate the oxidant-antioxidant balance. For the evaluation of oxidative stress, malonyldialdehyde (MDA) levels were measured. For evaluation of the antioxidant capacity, copper and zinc-dependent superoxide dismutase (CuZn-SOD), selenium-dependent glutathione peroxidase (Se-GPX), catalase enzyme and cofactors of these enzymes copper (Cu), zinc (Zn), selenium (Se) were evaluated.

Results: Prostate cancer group, due to increased oxidative stress MDA, and in response to the increase in the level of antioxidant enzymes catalase, were statistically significant. Se-GPX, CuZn-SOD, Se, Cu, Zn levels were the lowest in the BPH group and were significantly different to control group but there were no significant difference in the prostate cancer group. As a result lipid peroxidation increase in prostate cancer was significant.

Conclusion: Antioxidant enzyme increase is expected to clean radicals such as hydrogen peroxide. The only significant increase was at catalase levels. Low levels of CuZn-SOD were thought to be relevant to hydrogen peroxide increase and low levels of Se-GPX due to over-consumption.

UP052

Collagen Scaffold in Urethral Regeneration

Acevedo C¹, Aguilar E¹, Leon B², Piña C³, Molina L⁴, Sanchez J⁴, Garcia J², Gutierrez-Reyes G¹

¹Laboratory of Liver, Pancreas and Motility, School of Medicine, UNAM, General Hospital of Mexico, Mexico City, Mexico; ²Dept. of Surgery, School of Medicine, UNAM, Mexico City, Mexico; ³Laboratory of Biomaterials, Institute of Research in Biomaterials, UNAM, Mexico City, Mexico; ⁴Laboratory of Arrhythmia and Electrophysiology, School of Medicine, UNAM, General Hospital of Mexico, Mexico City, Mexico

Introduction and Objectives: Evaluate a biomaterial obtained of condyle (bone) bovine (Urocoll) as acellular scaffold in the urethral of male dog mongrel.

Materials and Methods: The procedure was performed in 7 healthy male dogs mongrel 15-25 Kg., average ages of 5-10 years. Prior to the surgical procedure was performed retrograde urethrography. During the proceedings were kept under general anesthesia prior aseptic technique and antiseptic. The resection 3 cm of healthy urethra at 45° in the extremes to 2 cm from the meatus of the penis. Urocoll was placed (same geometric shape and size segment urethral resection). For anastomosis by 6 points using vicryl 5-0 at each end. The animals were splinted with a transurethral catheter, cystostomy and drainage. The postoperative care was based in antibiotic, urinary antiseptic. The lifetime is assigned to each dog at random, the periods ranging from 10, 30 (2 dogs), 60 (2 dogs), 90 and 150 days. Retrograde urethrography was performed, prior to the sacrifice of the dog. Subsequently Urocoll implanted segment was resected for histological analysis, the fragment was fixed in formalin and embedded in paraffin, the sample was staining with Hematoxylin and Eosin (H & E), Masson reaction and Citokeratine 7 and 20.

Results: Proliferation urothelial was observed in the surface of Urocoll in all animals. The number of cell layers was directly proportional to the Xenotransplantation days. We showed the presence of normal urothelium cells with staining cytokeratin 7 and 20. A longer time of xenotransplantation, we found fewer residual collagen and minimal fibrosis, was evaluated by Masson staining. The adequate permeability of Urocoll was observed by lumen urethral, the inner diameter was maintaining permeable. The results demonstrated proliferation of normal urothelium, with a progressive reabsorption of xenotransplant and decrease of regenerative nodules, while the form and function of the healthy urethra was conserved.

Conclusion: Urocoll showed biocompatibility, cell regeneration and reabsorption characteristics in Urethral dog. We consider that Urocoll is likely a possible therapeutic option for diseases such as urethral stenosis, hypospadias and/or epispadias.

UP053

Can ¹⁸F-Fluorodeoxyglucose and ¹⁸F-Sodium Fluoride Positron Emission Tomography/Computed Tomography Be Used to Visualize Kidney and Vascular Changes in a Diabetic Rat Model? A Preliminary Report

Salling M¹, Baun C², Thigard H², Marcussen N³, Højlund-Carlson P², Lund L¹

¹Dept. of Urology, OUH, Odense, Denmark; ²Dept. of Nuclear Medicine, OUH, Odense, Denmark; ³Dept. of Pathology, OUH, Odense, Denmark

Introduction and Objectives: Diabetes mellitus (DM) is a group of metabolic disorders associated with a number of complications including nephropathy and the formation of atherosclerotic plaques, which involves inflammation and microcalcifications. The aim of the current study was to evaluate the effect of ¹⁸F-fluorodeoxyglucose ([¹⁸F]FDG) and ¹⁸F-Sodium Fluoride ([¹⁸F]NaF) positron emission tomography (PET)/computed tomography (CT) on imaging changes in kidney function and vascular alterations in diabetic rats and lean control rats.

Materials and Methods: Thirty weeks old Zucker Diabetic Fatty (ZDF) rats (fa/fa) (n = 4) and Zucker lean (ZL, +/-) control rats (n = 2) were followed for 12 weeks and included in this study. Prior to the PET/CT scans urine and blood samples were collected from all animals. For the PET/CT-studies the rats were anesthetized using isoflurane in 100% oxygen prior to injection of either [¹⁸F]FDG or [¹⁸F]NaF via the tail vein (approx. 15 MBq/100g body weight). At 90 min. p.i. the rats were PET/CT-scanned using a Siemens Inveon Small Animal scanner for 90 min. The dynamic PET scans were reconstructed using the MAP3D reconstruction algorithm and analysed using the Inveon Research Workplace. Afterwards the rats were sacrificed and the kidneys and vascular tissue sent to histochemical and histological examinations.

Results: In both groups it was possible to show [¹⁸F]FDG uptake in the kidneys and in the case of two rats (one ZDF rat, one ZL rat) one of the kidneys were shown to be dysfunctional. The insufficient kidney function could not be visualized by [¹⁸F]NaF uptake. There was no difference in [¹⁸F]FDG uptake in the aortic wall between the two groups. There was a difference between the two groups regarding blood – and urine examinations.

Conclusions: These findings indicate that [¹⁸F]FDG is a suitable tool to detect malformation in the kidneys but in the present dose is not able to detect vascular changes.

UP055

Perspectives for Young Patients with Urothelial Bladder Carcinoma

Pricop C¹, Ciuta C¹, Suditu N¹, Miron A², Brad A³, Martha O³

¹Dept. of Urology, University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania; ²Clinic of Urology and Renal Transplantation, Clinical Hospital Dr. CI. Parhon, Iasi, Romania; ³Dept. of Urology, University of Medicine and Pharmacy, Tg. Mures, Romania

Introduction and Objectives: Urothelial bladder carcinoma is a rare condition among young patients but the need of answers regarding their perspectives is obvious. By evaluating clinical characteristics, tumor recurrence and

progression in patients aged below 40 years, our retrospective multicenter study tried to clarify some of them.

Materials and Methods: We retrospectively evaluated the files of 77 patients less than 40 years old from our two centers who were firstly managed with urothelial bladder carcinoma between January 2004 and December 2013. Data were extracted on patients' characteristics, risk factors, tumor characteristics (number, diameter, location, pathological result), intravesical instillation therapy, number of recurrences, time till first recurrence, disease progression.

Results: Age ranged between 18 and 40, with a mean of 33.0 years. Mean follow-up was 42.54 months (12-118 months). Nineteen patients (24.7%) had multifocal tumors. Nine patients (11.7%) had high-grade bladder cancer, and sixty-eight had low-grade disease. Seventy-one patients (92.2%) had non invasive bladder cancer, only 6 (7.79%) suffering of muscle invasive bladder cancer, 3 of them with advanced disease for which they underwent cystectomy and adjuvant chemotherapy. Fifteen (19.5%) patients recurred during follow-up with a good correlation with the high-grade and multifocal tumors at first diagnosis ($p < 0.05$). No patient died during follow-up.

Conclusions: Our results showed that urothelial bladder carcinoma in young patients is usually low stage and low grade, mostly non-invasive papillary carcinomas and they have an excellent prognosis; however, a small number of patients may present with high-grade invasive urothelial carcinomas that result in poor clinical outcomes and need aggressive treatment.

UP.056

Chronic Inflammation and Bladder Cancer: How Hot Is the Link?

Kontos S, Nalagatla S

Monklands Hospital, NHS Lanarkshire, Airdrie, Scotland, UK

Introduction and Objectives: Nuclear Factor κ -B (NF κ B) is the 'supervisor' protein of chronic inflammation and malignant transformation. NF κ B remains in the cytoplasm transcriptionally silent. Activation of NF κ B in response to extracellular stimuli leads to translocation to the nucleus and activation of transcription of a plethora of genes, involved in tumor promotion and proliferation. Our objective was to evaluate the expression of NF κ B in Transitional Cell Carcinoma of the bladder and its correlation with histological Grade and clinicopathological parameters.

Materials and Methods: Immunohistochemical methodology was performed on formalin-fixed, paraffin-embedded sections from urinary bladder carcinomas of 140 patients (94 males (67.1%) and 46 females (32.9%)), who underwent curative transurethral resection. The patients' age ranged from 23 to 90 years, (mean

age = 70 years). Their diagnoses were reported as follows: Grade I $n = 27$ (19.3%), Grade II $n = 30$ (21.4%), and Grade III $n = 54$ (38.6%). Twenty nine (20.7%) cases of normal bladder epithelium were selected from patients that underwent diagnostic biopsies. Monoclonal antibody against NF κ B was used. Relationship between NF κ B and Grades of carcinogenesis were evaluated by Spearman's rank correlation coefficient and validated by Fisher's exact test.

Results: NF κ B signal was both cytoplasmatic and nuclear. Cytoplasmatic expression of NF κ B was undetectable in 6.9% (2/29) of specimens of normal epithelium and overexpressed in 38.9% (7/29). On the other hand, none of the well differentiated tumor and only 3.3% (1/30) of moderate and 1.8% (1/54) of poor differentiated specimens showed negative NF κ B cytoplasmic staining. Statistical analysis revealed a negative correlation between cytoplasmatic molecular expression and Grades of differentiation. As normal cells progressively gained atypical characteristics the cytoplasmic expression of NF κ B has been downregulated. No association with age or gender was observed.

Conclusions: Our results indicate an induction of this key molecule along the carcinogenesis path and the level of differentiation. Although inflammation has long been known as a localized protective reaction of tissue, there has been a new realization about its role in cancer. These observations imply that anti-inflammatory agents that suppress NF κ B should have a potential role in bladder cancer chemoprevention.

UP.057

Inhibition of Cyclooxygenase-2 (Cox-2): An Opportunity for Bladder Cancer Control

Kontos S¹, Tsafrakidis P², Nalagatla S¹

¹Monklands Hospital, NHS Lanarkshire, Airdrie, Scotland, UK; ²Broomfield Hospital, Essex, UK

Introduction and Objectives: Cyclooxygenase-2 (Cox-2), an enzyme that catalyzes the synthesis of prostaglandins, is overexpressed in a variety of premalignant and malignant conditions, including urinary bladder cancer. Our objective was to evaluate the expression of Cox-2 in transitional cell carcinoma of the bladder and we extended our investigation along the entire scale of histologic types and clinicopathological parameters, in order to exert from this key molecule its chemoprophylactic properties.

Materials and Methods: Immunohistochemical methodology was performed on formalin-fixed, paraffin-embedded section from 140 patients (94 male (67.1%) and 46 female (32.9%)), the patients' age ranged from 23 to 90, mean age = 70 years, who underwent curative transurethral resection urothelial carcinoma and their diagnoses were reported as follows: grade I $n = 27$ (19.3%), grade II $n = 30$ (21.4%), and grade III $n = 54$ (38.6%). Twenty nine (20.7%) cases of normal bladder epithelium were selected from

patient that underwent diagnostic biopsies. Monoclonal antibody against the human Cox-2 molecule was used. A molecular profile was created for each patient and the induction or downregulation of Cox-2 expression was evaluated and documented. Relationships between Cox-2 and stages of carcinogenesis were evaluated by Spearman's rho correlation coefficient and validated by Fisher's exact test.

Results: Statistical analysis of the data on Cox-2 showed a statistically significant relationship between histological stage and expression. 20.7% (14/29) of normal transitional epithelium presented with weak expression of Cox-2, whereas grade III specimen the prevailing group is that of strong expression. The Spearman rank correlation coefficient (r_s) determined a positive direction of correlation ($r_s = 0.15$, p -value = 0.03), meaning that histological stage from normal to a more severe level is characterized by an increase in Cox-2 expression, and revealed a significant trend in Cox-2 expression across the ordered levels of histological stage (p -value = 0.04). The expression of Cox-2 was independent of age and gender.

Conclusions: Excessive and prolonged activation of Cox-2 has been linked to numerous human diseases, especially cancer. Identification of the presence and overexpression of the protein in bladder tumorigenesis, warrants target specific chemopreventive strategies, such as celecoxib, a widely known selective Cox-2 inhibitor.

UP.058

To Prospectively Assess the Morbidity, Using the Clavien-Dindo Classification and the Medium-Term Outcomes of a Contemporary Radical Cystectomy Series from a Specialist Referral Centre

Nandwani G, Addla S, Singh R, Chahal R

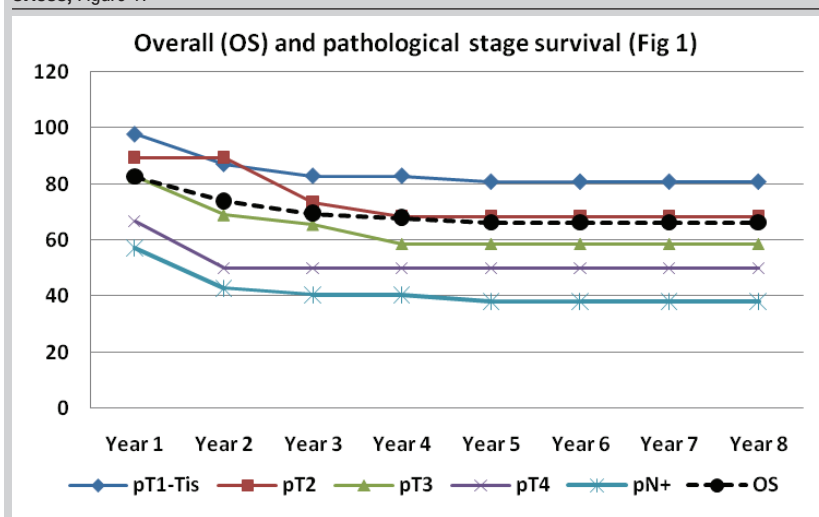
Bradford Teaching Hospital NHS Trust, Bradford, UK

Introduction and Objectives: Radical cystectomy is the standard of care in the management of muscle invasive bladder cancer. There is a lack of reporting complications in a standardised way. We prospectively assessed procedure related complications by using the Clavien-Dindo grading system and the medium-term outcomes.

Materials and Methods: The data was collected from Jan 2006 to December 2013 on 184 patients from our prospectively maintained database. Median follow-up was 48 months (1-96).

Results: The mean age was 67 (31-83). Neo-adjuvant chemotherapy and prior radiotherapy was given in 23.6% and 8.15%, respectively. Recurrences developed in 56 (30.43%); of these, local and systemic recurrences occurred in 21 (11.4%) and 35 (19.02%), respectively. Cancer specific and overall survivals at 8 years were 78.8% and 65.76%, respectively. Stage specific overall survivals are shown in Figure 1.

UP.058, Figure 1.



UP.058, Table 1. Details of Major Complications (Clavien-Dindo Grade 3-5)

| | Grade 3 | Grade 4 | Grade 5 |
|-------------------------|---------|---------|---------|
| Myocardial infarction | 1 | 4 | - |
| CVA | - | - | 1 |
| Respiratory failure | - | 9 | 2 |
| Bowel leakage | - | 1 | 2 |
| Ischaemia of conduit | - | 1 | 2 |
| Urinary leakage | 3 | - | - |
| Burst abdomen | 5 | - | - |
| Toxic mega-colon | - | 1 | - |
| Bowel obstruction | 1 | 1 | 1 |
| Intra-abdominal abscess | - | 1 | - |
| Renal failure | 1 | 3 | 2 |

Complications were observed in 67 (36.41%) patients; of these, Clavien-Dindo Grade 1 in 7 (3.8%), Grade 2 in 27 (14.67%), Grade 3 in 15 (8.15%), Grade 4 in 10 (5.43%) and Grade 5 in 9 (4.89%). Thirty and 60 day mortalities were 9 (4.89%) and 10 (5.43%). Salvage

cystectomy patients had higher grade 3-5 complications but there were no deaths. Bowel related complications included anastomosis leak in 3 (1.63%), obstruction in 3 (1.63%), toxic mega-colon in 1 (0.54%), conduit ischaemia in 3 (1.63%) and uretero-ileal leak in 5 (2.71%).

The details of grade 3-5 complications are shown in Table1.

Conclusions: Low grade Clavien-Dindo (1-2) complications occurred in 18.7% and high grade (3-5) in 18.57%. Bowel related complications carried high mortality. Overall survival was related to the final pathological stage.

UP.059

Explorative Study of Urinary Cytokine/Chemokine Response in the Bladder after Combined Chemohyperthermia for Non-Muscle Invasive Bladder Cancer

Arends T, van der Heijden A, Witjes A
Radboudumc, Nijmegen, The Netherlands

Introduction and Objectives: Bladder wall hyperthermia and intravesical chemotherapy (chemohyperthermia (C-HT)) is a safe and effective treatment option for non-muscle invasive bladder cancer (NMIBC). The molecular pathway explaining the efficacy of C-HT has not been unraveled. To shed light on the molecular mechanism of C-HT induced cell destruction, urinary cytokine & chemokine (CK) levels were determined. The objectives were to explore CK differences between cold Mitomycin (cMMC) and C-HT, and C-HT responders vs. C-HT non-responders.

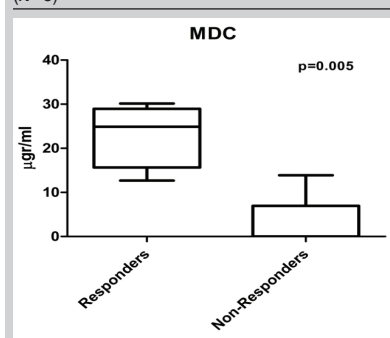
Materials and Methods: Twelve NMIBC-patients were included. Nine received six times C-HT and three received 4 sessions cMMC. Urine was collected on 8-12 time points before and after every treatment, resulting in 624 urines. MDC, IL-2, IL-6, IL-8, IP-10, MCP-1 and RANTES were determined by Luminex®-analysis.

Results: CK-peaks after treatment were clearly visible, in both groups. The majority of cMMC CK-peak levels were lower than peak levels in C-HT treatment. Significant cumulative effects were observed for IP-10 ($p < 0.001$, Table 1) and IL-2 ($p = 0.023$, Table 1). Significant higher concentrations during treatment in the C-HT group were observed for MCP-1 and IL-6 ($p = 0.049$ and $p = 0.032$, respectively, Table 1). Stratifying by C-HT responders and non-responders, MDC levels during the first week

UP.059, Table 1. Estimated Cumulative Effects and Estimated Concentration Differences between C-HT and cMMC Groups by Linear Mixed Models for Repeated Measurements

| Variable | Cumulative effect during treatment; C-HT vs. cold-MMC; [95% CI] | p-value | Concentrations differences; C-HT vs. cold-MMC; µg/ml. [95% CI] | p-value |
|----------|---|---------|--|---------|
| MDC | 2.966 [-0.958-6.889] | 0.133 | 10.747 [-1.920-23.413] | 0.092 |
| MCP-1 | 10.558 [-31.385-52.502] | 0.615 | 121.265 [0.580-241.950] | 0.049 |
| IL-2 | 0.087 [0.013-0.161] | 0.023 | 0.118 [-0.063-0.301] | 0.184 |
| IL-6 | 0.002 [-1.863-1.866] | 0.998 | 6.810 [0.641-12.979] | 0.032 |
| IL-8 | -13.374 [-106.500-79.752] | 0.776 | 314.539 [-17.45-646.529] | 0.062 |
| IP-10 | 193.958 [109.961-277.955] | <0.001 | 100.287 [-121.200-321.773] | 0.348 |
| RANTES | -3.292 [-9.533-2.950] | 0.285 | 37.528 [-0.133-75.187] | 0.051 |

UP.059, Figure 1. MDC Peak-Concentration after the First C-HT Instillation, Stratified by C-HT Responders (N=4) and C-HT Non-Responders (N=5)



were significantly higher in the responding C-HT group ($p=0.005$, Figure 1).

Conclusion: Urinary CK can be detected after MMC-treatment. Significant higher concentrations in the C-HT group were observed in MCP-1 and IL-6. MDC increase after the first C-HT instillation seems related to good clinical outcome, and might be of additional value to personalize treatment. Studies involving more patients and longer follow-up are needed to substantiate this observation.

UP.060

Effect of PTEN Gene Mutations and Environmental Risk Factors on the Progression and Prognosis of Bladder Cancer

Mashhadi R¹, Pourmand G¹, Mehraei A¹, Pakdel S², Dialameh H¹, Ahmadi A³, Salem S¹, Salimi E³, Mahboubi R³, Beladi L¹, Alizadeh F¹
¹Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran; ²Dept. of Urology, Kermanshah University of Medical Sciences, Kermanshah, Iran; ³Dept. of Pathobiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: Bladder cancer is the most frequent genitourinary malignancy in Iran. Environmental and genetic factors are the two factors linked with bladder cancer expansion. The aim of this study was to investigate the role of PTEN gene and environmental risk factors on the progression and prognosis of bladder cancer.

Materials and Methods: We evaluated 55 tumor specimens and 66 bladder mucosa samples of non-cancerous patients between 2011 and 2013. All samples were analyzed for PTEN mutations using PCR and direct DNA sequencing methods. Demographic data collected, were analyzed using SPSS version 19.0 software and a P value of < 0.05 was considered statistically significant.

Results: Of the 55 patients examined, tumor stage was T1, T2 (T2a, T2b) in 34 (61.8%) and 21 (38.2%) and tumor grade was high, low

in 34 (61.8%) and 21 (38.2%), respectively. No mutations in the PTEN gene were found in patients with bladder cancer and control. Among the risk factors studied, only the occupation and history of urinary tract stones, were significantly associated with bladder cancer (P value <0.05). However, other risk factors did not show such a relationship.

Conclusion: No mutation was found in PTEN gene of patients with bladder cancer. Therefore, mutations in this gene cannot predict the prognosis and progression of urothelial bladder cancer. On the other hand, a significant relationship was found between occupation and urinary stones with bladder cancer. This communication reflects the impact of these factors on the risk of bladder cancer.

UP.061

Clinical Application of Prostaglandin Axis in Urothelial Carcinoma of Urinary Bladder: Is There a Role of COX Inhibitor?

Lu K, Lin V, Yu T

E-Da Hospital and I-Shou University, Kaohsiung City, Taiwan

Introduction and Objectives: The aim of study was to analyze the protein expression patterns of EP (prostanoid receptors) subtypes, vascular endothelial growth factor-C (VEGF-C), VEGF-D and vascular endothelial growth factor receptor (VEGFR3) in urothelial cancer of urinary bladder (UB-UC), to identify potential clinical predictors and develop promising chemoprevention strategies.

Materials and Methods: From October 2004 to August 2008, thirty patients with UB-UC were enrolled in this study. The expression patterns of EPs, COX-2, VEGF-C, VEGF-D and VEGF-R3 were examined by immunohistochemical analysis. The results were correlated with clinico-pathological parameters.

Results: The demographic characteristics of enrolled patients were as in Table 1. All subtypes of prostaglandin E receptors were expressed in urothelial cancer tissues, but not in normal bladder tissues. Prostaglandin E receptors were highly expressed in high grade urothelial cancer. Expression of prostaglandin axis was significantly correlated with expression of VEGF-D and VEGFR-3 ($p<0.05$, chi-square test), but not with that of VEGF-C (not statistically significant).

Conclusion: Expression levels of prostaglandin axis in urothelial cancers were correlated with lymphangiogenesis and involved in tumor progression. Prostaglandin axis appears to be a promising therapeutic modulator in bladder cancer, especially lymphangiogenic pathways. Further prospective study needs to be conducted to investigate how prostaglandin axis was implicated in homeostasis of lymphatic vessels in tumor microenvironment and to verify its role in clinical outcome in bladder cancer.

UP.061, Table1. Patients and clinico-pathological characteristic profile

| | |
|--------------------|-------------|
| Number of patients | 40 |
| Age | 36-83 |
| Average age | 64.38±12.06 |
| Gender | |
| Male | 24 (60%) |
| Female | 16 (40%) |
| T classification | |
| pT1 | 24% |
| pT2 | 28% |
| pT3 | 40% |
| pT4 | 8% |
| Grade | |
| Low | 22.9% |
| High | 77.1% |

UP.062

Heme Oxygenase-1 Expression Is Associated with Tumour Aggressiveness and Survival in Patients with Bladder Cancer: Correlation with Smoking Intensity

Asai A, Miyata Y, Mitsunari K, Matsuo T, Ohba K, Sakai H

Nagasaki University, Nagasaki, Japan

Introduction and Objectives: Heme oxygenase (HO)-1 is up-regulated in various cancers, and its function is modulated by cigarette smoking. The aim of this study is to clarify relationships between HO-1 expression and clinicopathological features, survival, and various cancer-related factors that depended on smoking intensity in bladder cancer patients.

Materials and Methods: HO-1 expression was assessed in 215 formalin-fixed specimens by immunohistochemistry. Microvessel density (MVD), lymph-vessel density (LVD), proliferation index (PI), and expression of vascular endothelial growth factors (VEGF)-A, -C, -D, cyclooxygenase (COX)-2, matrix metalloproteinase (MMP)-2, and -9 were also evaluated. Multi-variate logistic regression analyses and Kaplan-Meier survival curves were used.

Results: HO-1 expression was positively associated with T stage, lymph node metastasis, and grade. Multivariate analyses showed that HO-1 expression was positively correlated with smoking intensity. HO-1 expression was also positively associated with PI, LVD, and expression of VEGF-D, COX-2, MMP-2, and MMP-9 ($p < 0.001$). Positive expression of HO-1 was identified to be a significant worse predictor of cause-specific survival by multi-variate analysis. HO-1-related pathological changes were dependent on smoking intensity. The study is limited by its retrospective nature.

Conclusion: HO-1 expression was up-regulated by smoking and it was associated with malignant behavior of bladder cancer. Cancer cell proliferation, lymphangiogenesis, and

expressions of VEGF-D, COX-2, and MMP-2 played important roles in these HO-1-related effects, and they were regulated by complex mechanisms that depended on smoking intensity. Smoking status is important to discuss observation and treatment strategies used HO-1 in patients with bladder cancer.

UP.063

Synergistic Antitumor Effect of SAHA and Cisplatin in Cisplatin Resistant Bladder Cancer Cell Line

Lee Y, Jo J, Lee H, Kim K, Oh J, Lee S, Jeong S, Hong S, Byun S, Lee E, Lee S
Seoul National University Bundang Hospital, Seongnam-si, South Korea

Introduction and Objectives: Cisplatin-based chemotherapy remains first-line treatment for advanced bladder cancer. No standard chemotherapeutic agent has been established for patients with cisplatin resistant bladder cancer. We investigated the synergistic antitumor effect of suberoylanilide hydroxamic acid (SAHA) and cisplatin in cisplatin resistant bladder cancer cells (T24R2).

Materials and Methods: The cisplatin resistant human bladder cancer cell line (T24R2) was treated with cisplatin and/or SAHA. Tumor cell proliferation was assessed by cell counting kit-8 assay and clonogenic assay. Synergism was determined by combination index. Changes in cell cycle were determined by flow cytometry. Expression of caspase-3, 8 and 9, PARP, cytochrome c, p21, Bcl-2, Bad, p27, cyclin A, cyclin D1, and cyclin E were analyzed by Western blotting.

Results: Synergistic antitumor effect between cisplatin and SAHA was observed by cell counting kit-8 assay, clonogenic assay and confirmed with combination index less than 1.0. The underlying mechanism could be synergistic cell cycle arrest, activation of apoptotic pathway including caspase-3, -8, -9 and fragmented PARP or decreased expression in anti-apoptotic Bcl-2 and increased expression in pro-apoptotic BAD.

Conclusions: SAHA may synergistically enhance the antitumor effect of cisplatin and resensitize cisplatin resistant bladder cancer cells. These findings suggest the potential use of SAHA as a combination agent to enhance the antitumor effect of cisplatin in patients with advanced bladder cancer.

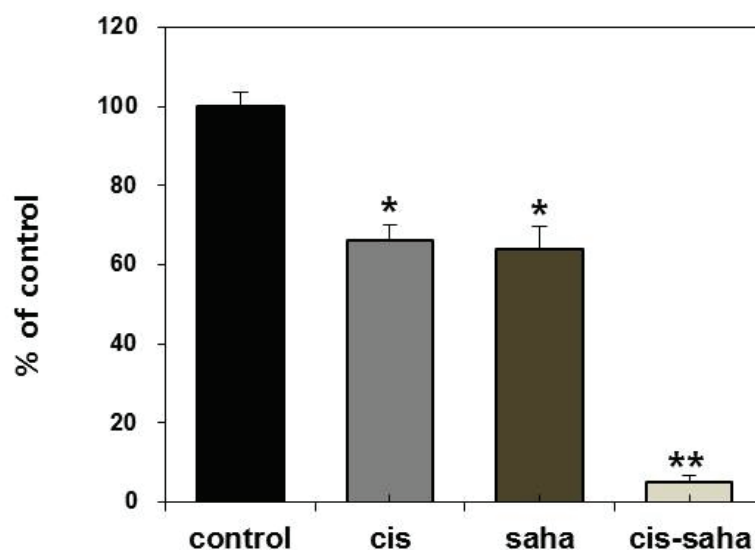
UP.064

Synergistic Antitumor Effect of Ginsenoside Rg3 and Cisplatin in Cisplatin Resistant Bladder Cancer Cell Line

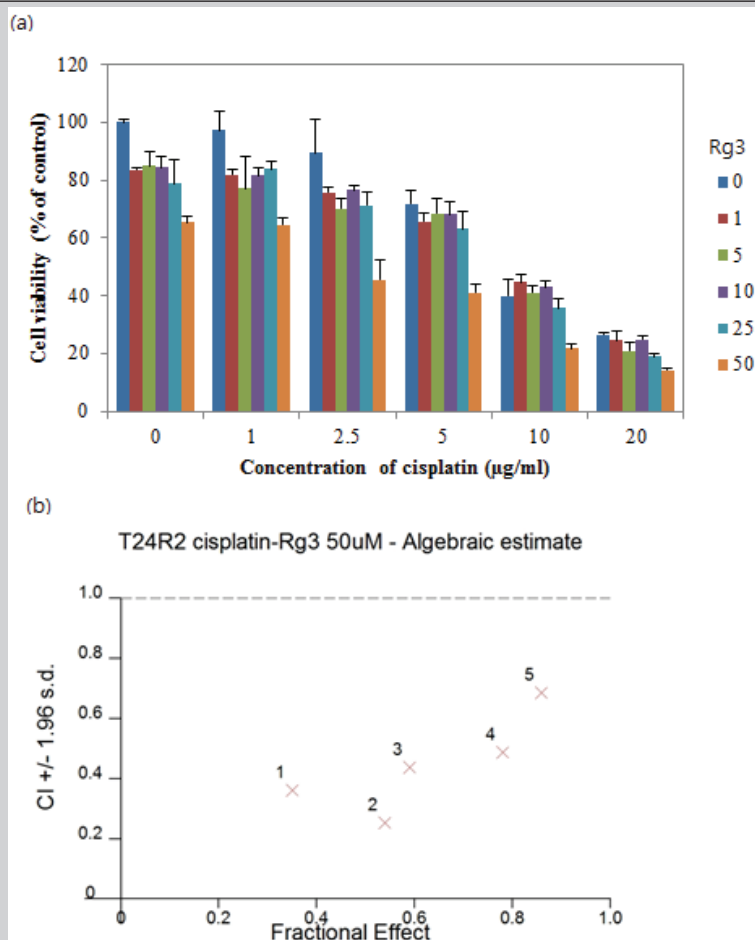
Lee Y, Jo J, Lee H, Kim K, Oh J, Lee S, Jeong S, Hong S, Byun S, Lee E, Lee S
Seoul National University Bundang Hospital, Seongnam-si, South Korea

Introduction and Objectives: Cisplatin-based chemotherapy remains first-line treatment for

UP.063, Figure 1. Clonogenic assay of SAHA and cisplatin in T24R2 cell after 48 hours (CT:control, Cis:Cisplatin)



UP.064, Figure 1. CCK-8 assay of combined treatment of ginsenoside Rg3 and cisplatin in T24R2 cell after 48 hours (a), combination index (b)



metastatic urothelial cell carcinoma. For cisplatin resistant cases, no chemotherapeutic agent has been established as a standard of treatment. We investigated the synergistic antitumor effect of cisplatin and ginsenoside Rg3 in cisplatin resistant bladder cancer cells (T24R2).

Materials and Methods: The cisplatin resistant human bladder cancer cell line T24R2 was treated with cisplatin and/or ginsenoside Rg3. Tumor cell proliferation was assessed by cell counting kit-8 assay (Figure 1) and clonogenic assay. Synergism was determined by combination index. Cell cycle distribution was determined by flow cytometry. Western blot and densitometric assay was performed for caspase-3, 8 and 9, cyclin B1, Bcl-2, Bad, p21, cytochrome C, p-Akt and Akt to evaluate the changes in cell cycle and apoptosis.

Results: Synergistic antitumor effect between cisplatin and ginsenoside Rg3 was observed by cell counting kit-8 assay, clonogenic assay and confirmed with combination index less than 1.0. The underlying mechanism could be in decreased expression in Bcl-2 and activation of intrinsic apoptotic pathway including cytochrome C and caspase-3.

Conclusions: Ginsenoside Rg3 may synergistically enhance the antitumor effect of cisplatin in cisplatin resistant bladder cancer cells and intrinsic apoptotic pathway might be the reason for it.

UP065

MeCP2 Silencing in High Grade Bladder Cancer Derived HTB-5 Cell Line Affects Promoter Methylation in Tumor Suppressor Genes

Abbas F, Bilgrami S

Aga Khan University Hospital, Karachi, Pakistan

Introduction and Objectives: DNA methylation negatively influences transcription and plays a critical role in shaping the epigenome to establish accurate temporal and spatial expression of genes. Silencing of tumor suppressor genes due to promoter hypermethylation has been well documented in different types of cancers but the role played by different methyl binding proteins remains to be elucidated. Methyl-CpG binding proteins act as translators of the DNA methylation signal. These proteins bind to DNA in a sequence specific manner and bring about chromatin condensation by recruiting repressor complexes. Currently, there are five known methyl-binding proteins in mammals namely MeCP2, MBD1, MBD2, MBD4 and Kaiso. We studied the effect of MeCP2 silencing on the promoter methylation status of a panel of tumor suppressor genes, using EpiTect® Methyl qPCR Array.

Materials and Methods: The HTB-5 cell line was obtained from American Type Culture Collection (ATCC, Manassas, VA) and was maintained in Eagle's minimum essential medium.

UP065, Table 1. Mean percentage of hypermethylated DNA in mock and psiRNA-MeCP2 transfected HTB-5 cells using tumor suppressor genes promoter methylation array (MeAH-551)

| S.no | Symbol | RefSeq | Mock Plasmid | psiRNA- hMeCP2 |
|------|---------|-----------|--------------|----------------|
| 1 | APC | NM_000038 | 50% | 1% |
| 2 | CDH13 | NM_001257 | 90% | 82% |
| 3 | CDKN2A | NM_058195 | 50% | 7.32% |
| 4 | DAPK1 | NM_004938 | 50% | 0.50% |
| 5 | FHIT | NM_002012 | 50% | 0.56% |
| 6 | GSTP1 | NM_000852 | 50% | 63% |
| 7 | HoxA1 | NM_005522 | 50% | 3% |
| 8 | IGF2 | NM_000612 | 82% | 50% |
| 9 | MGMT | NM_002412 | 50% | 4% |
| 10 | MLH1 | NM_000249 | 50% | 1.80% |
| 11 | NEUROG1 | NM_006161 | 82% | 12% |
| 12 | PDLIM4 | NM_003687 | 90% | 89% |
| 13 | PTEN | NM_000314 | 50% | 2.40% |
| 14 | RARB | NM_000965 | 50% | 17% |
| 15 | RASSF1 | NM_007182 | 80% | 76% |
| 16 | SOCS1 | NM_003745 | 50% | 4% |
| 17 | TIMP3 | NM_000362 | 50% | 25% |
| 18 | TP73 | NM_005427 | 96% | 96.08% |
| 19 | VHL | NM_000551 | 50% | 0.39% |
| 20 | WIF1 | NM_007191 | 50% | 5.66% |

Cells were transfected with a mock plasmid and a silencing plasmid psi-RNA MeCP2. Human tumor suppressor genes promoter Methylation array (EpiTect® Methyl qPCR array-Signature 24-Gene Panel, 96-well array-Qiagen) was employed to determine any difference in the promoter Methylation status of MeCP2 silenced HTB-5 cells and control transfected HTB-5 cells.

Results: Out of the 24 tumor suppressor genes studied, twenty genes were included in the analysis excluding *BRCA1*, *CDH1*, *ESR1* and *RUNX3*. When the percentage of hypermethylated promoter was compared between the two cell types, most of the genes show higher percentage of hypermethylated promoters in the mock transfected HTB5 cells as compared to MeCP2 silenced cells (see Table 1).

Conclusion: The results of our study suggest that MeCP2 protein appears to be involved in cellular processes and its silencing affects the promoter methylation status of a distinct set of tumor suppressor genes in the HTB-5 cell line.

UP066

CYR61/CCN1 and CTGF/CCN2 Confer Resistance to Cisplatin Chemotherapy in Muscle Invasive Bladder Cancer

Brown M¹, Robinson R¹, Hart C¹, Ramani V^{2,3}, Lau M^{2,4}, Sangar V^{2,3}, Clarke N^{2,4}

¹Genito Urinary Cancer Research Group,

University of Manchester, Manchester, UK; ²The Christie NHS Trust, Manchester, UK; ³South Manchester University Hospital, Manchester, UK; ⁴Salford Royal NHS Trust, Salford, UK

Introduction and Objectives: CYR61/CCN1 (cysteine rich angiogenic inducer 61) and CTGF/CCN2 (connective tissue growth factor) have been shown to confer resistance to chemotherapy in cancers, including breast and ovarian cancer. Muscle invasive bladder cancer (MIBC) resistance to cisplatin remains a significant issue both in the neo-adjuvant and palliative setting. Little is currently known about the role of CYR61 and CTGF in MIBC. This study assesses the role of these proteins in MIBC cisplatin resistance.

Materials and Methods: The high-grade invasive J82 and T24 bladder cancer cell-lines were treated with cisplatin (IC₅₀) during 72 hour SRB (sulforhodamine B) cell proliferation assays. The effect of siRNA knockdown of CYR61 and CTGF on cell proliferation and chemosensitivity, compared to treatment with a non-targeting (NT) siRNA control, was evaluated.

Results: Knockdown of CYR61 caused a 30% reduction in J82 cell proliferation (p=0.0003) but had no significant effect on T24 cells. CTGF knockdown caused a 51% and 86% reduction in J82 and T24 proliferation respectively (p<0.0001). Knockdown of either CYR61 or

CTGF combined with IC₅₀ cisplatin treatment reduced cell proliferation significantly compared to either IC₅₀ cisplatin alone or CYR61/CTGF knockdown alone in both cell lines ($p < 0.05$). The combined effect of IC₅₀ cisplatin and CYR61 or CTGF knockdown significantly reduced cell proliferation, measured as fold change from baseline, to 1.77 and 1.2 compared with 4.98 for NTsiRNA alone in the J82 line; and 1.40 and 1.04 compared with 15.75 for NTsiRNA alone in the T24 line respectively ($p < 0.0001$).

Conclusions: Knockdown of CYR61 or CTGF increases MIBC sensitivity to cisplatin significantly and both are potential treatment targets. These findings warrant further investigation as chemotherapeutic options are very limited in this disease.

UP067

CYR61/CCN1 Mediates HGF Linked Migration/Invasion and Promotes Phenotypic Aggression and Poor Prognosis in MIBC

Brown M¹, Robinson R^{1,2}, Hart C¹, Ramani V^{3,4}, Lau M^{2,3}, Sangar V^{3,4}, Clarke N^{2,3}

¹Genito Urinary Cancer Research Group, University of Manchester, Manchester, UK; ²Salford Royal NHS Trust, Salford, UK; ³The Christie NHS Trust, Manchester, UK; ⁴South Manchester University Hospital, Manchester, UK

Introduction and Objectives: CYR61/CCN1 (Cysteine rich angiogenic inducer 61) has been implicated in aggressive cancer cell behaviour in various tumours. It plays a role in cell proliferation, adhesion, migration and it mediates hepatocyte growth factor (HGF) dependent migration. Little is known about its role in muscle invasive bladder cancer (MIBC). We used novel marker approaches, correlating bladder cancer cell line models with a large scale outcome linked MIBC tissue microarray (TMA), to evaluate the role of CYR61 in MIBC.

Materials and Methods: siRNA knockdown of CYR61 in the, high-grade invasive, J82 and T24 bladder cancer cell-lines was performed during proliferation, migration and Boyden chamber Matrigel® invasion assays, in response to stimulation with both HGF and foetal calf serum (FCS). A TMA was constructed using cystectomy specimens of 567 MIBC patients with comprehensively documented outcomes and >5 years follow-up. Cellular expression of CYR61 and cMET (HGF receptor) was then quantified by IHC staining and automated image-analysis using Definiens® software.

Results: J82 and T24 cells both overexpressed CYR61. CYR61 knockdown significantly reduced HGF induced migration in both T24 ($p < 0.05$) and J82 ($p < 0.001$) cells. During Boyden chamber Matrigel® invasion assays CYR61 knockdown produced a 5 and 4.6 fold reduction in invasion ($p < 0.0001$) of J82 cells

towards HGF and FCS respectively and 7.6 ($p < 0.0001$) and 1.9 ($p < 0.01$) fold reduction in the T24 line. CYR61 knockdown also led to loss of expression of the mesenchymal marker vimentin in the J82 line. Increased expression of CYR61 significantly reduced cancer specific survival following cystectomy (median survival 33 vs. 72 months ($p = 0.0264$), high and low expression respectively). Increased expression of CYR61 was shown to be an independent predictor of overall survival HR 1.393, 95%CI 1.063-1.826, $p = 0.0160$ in a multivariate Cox regression analysis.

Conclusions: CYR61 is an important component of the HGF-cMET axis in MIBC. CYR61, independent of HGF-cMET, promotes a more aggressive MIBC phenotype and knockdown reverses features of EMT. Clinical cohort correlation confirms CYR61 to be a promising treatment target in MIBC either alone or in combination with cMET targeting therapy.

UP068

The Effect of Morphine and Its Inhibitors on RT112 Bladder Cancer Cell Growth

Giatsidou I¹, Cooper A¹, Lwaleed B², Birch B³

¹University of Portsmouth, Portsmouth, UK; ²University of Southampton, Southampton, UK; ³University Hospital Southampton NHS Foundation Trust, Southampton, UK

Introduction and Objectives: Clinical studies suggest opioid use as postoperative analgesia affects rates of metastasis in breast and prostate cancer, with additional evidence from xenograft models. Morphine has been shown to induce apoptosis in human tumour cell lines at mM concentrations. Antagonists are used clinically to minimise side effects and it is suggested that they might be complementary to chemotherapy. Dietary casomorphines and endogenous opioids are complicating factors *in vivo*. Cell signalling by morphine, through micro-opioid receptors, may affect angiogenesis, and both migration and proliferation of cancer cells. Little published work relates to bladder cancer. The objective here was to investigate any regulatory effect that morphine has on urothelial cells *in vitro* and whether the receptor blockers naloxone and naltrexone modify any such effect.

Materials and Methods: Residual viable biomass of adherent RT112 transitional cell carcinoma cells was measured in a 96-well plate tetrazolium-based assay, following exposure over three days to serial dilutions of morphine (as sulphate), naloxone and naltrexone (as hydrochlorides), including two-way titrations of drug and blocker to form a matrix of reagent proportions.

Results: Morphine elicited a non-monotonic growth response, starting by reducing residual biomass at very high concentration (~1mM), reaching a peak of significant growth stimulation ($P < 0.001$ using pairwise tests or analysis

of variance) at ~25µM, thereafter dropping to control (untreated) levels by 1nM. Naltrexone and naloxone used alone had an insignificant effect on cell growth. Titrating morphine four hours after treatment with standard naltrexone caused stimulation of growth at high concentrations, but the effect was blocked in lower concentrations. Some reversal of stimulated growth could also be achieved when the treatment order was reversed, suggesting a competitive binding mechanism. Two-way titrations gave results where the greatest growth is seen in the corner of the plate where the ratio of morphine to blocker is highest.

Conclusion: Morphine has a stimulatory effect on the growth of RT112 cells *in vitro*, can be at least partially reversed with the receptor blockers naloxone and naltrexone. These phenomenological results invite further mechanistic studies and clinical audits in bladder as much as in breast cancer.

UP069

Inhibition of Autophagy: A Novel Window for Overcoming Therapeutic Resistance in Carcinoma of Urinary Bladder

Ojha R, Singh S, Jha V, Bhattacharyya S, Mandal A

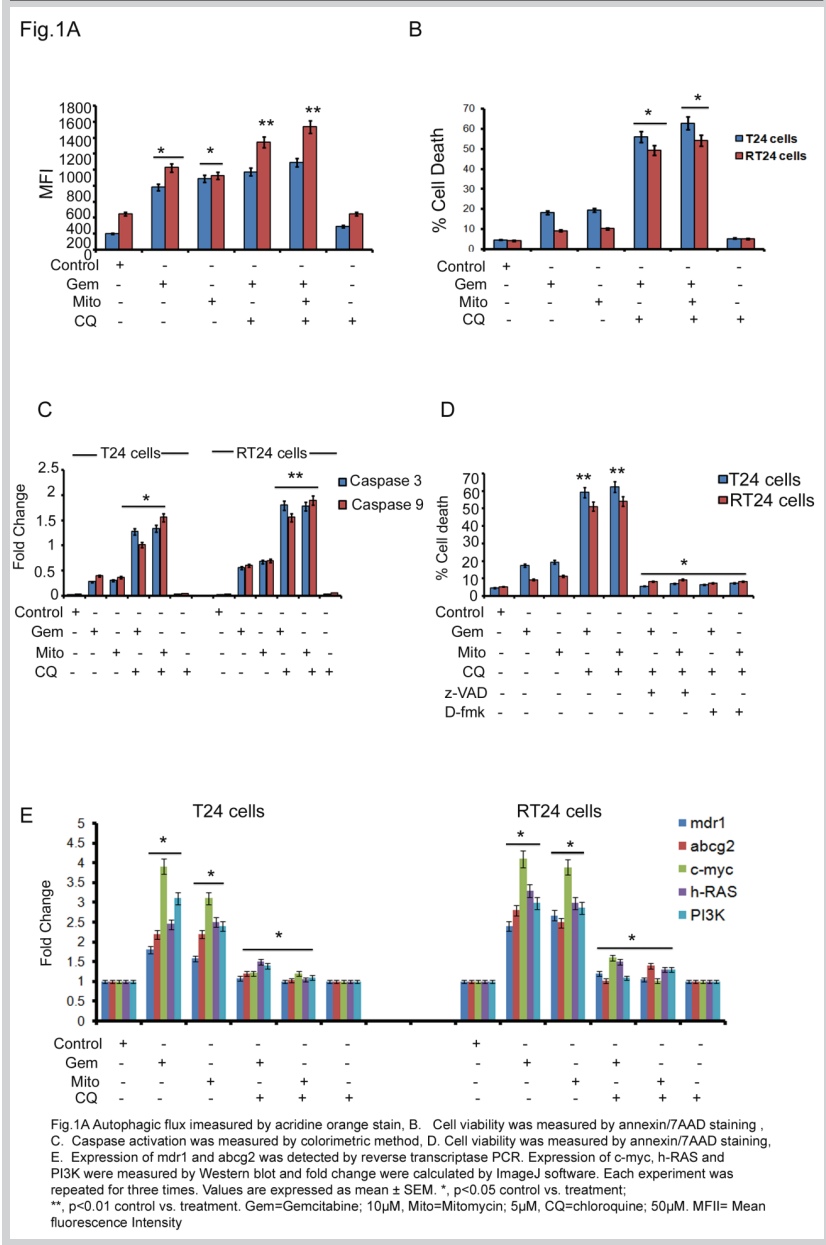
Post Graduate Institute of Medical Education and Research, Chandigarh, India

Introduction and Objectives: To determine the effect of autophagy modulation on resistant bladder cancer cell survival and to investigate whether autophagy modulation can potentiate the efficacy of anticancer therapeutic agents.

Materials and Methods: The study was conducted on T24 and UM-UC-3 bladder cancer cell lines. Cisplatin resistant T24 cell (RT24) line was established by intermittent exposure to cisplatin and stepwise increasing the concentration (0.1-3µg/ml) of cisplatin. The therapeutic implication of autophagy was studied by using mitomycin and gemcitabine alone or in combination with autophagy inhibitors, chloroquine. Autophagy was studied by acridine orange staining. Cell viability was measured by annexin-V/7-AAD staining. Expression of resistant markers *mdr1*, *abcg2*, h-RAS, c-myc and PI3K were also measured.

Results: Cells treated with mitomycin or gemcitabine showed increase in autophagosome formation as compared to untreated cells (Figure 1A). Treatment with mitomycin and gemcitabine showed only 18% and 19% cells death in T24 and 8% and 10% cell death in RT24 cells respectively. Addition of chloroquine further increased cell death significantly in both T24 and RT24 cells (Figure 1B). Inhibition of mitomycin and gemcitabine-induced autophagy increased caspase-9 and -3 activation (Figure 1C). Cell treated with specific caspase inhibitor blocked the cell death (Figure 1D). Chloroquine along with mitomycin/ gemcitabine

UP.069, Figure 1.



caused decreased expression of various resistant markers such as *mdr1*, *abcg2*, *c-myc*, *h-RAS* and *PI3K* in both T24 and RT24 cells (Figure 1E). Similar results were also obtained in UM-UC-3 cells.

Conclusions: Autophagy is a prosurvival mechanism which overcomes the resistance of chemotherapeutic agents in bladder cancer. Autophagy inhibition leads to caspase dependent intrinsic apoptotic cell death, and thereby, enhances cytotoxicity of chemotherapeutic agents. Therefore, autophagy inhibition may have potential clinical significance in minimizing chemotherapeutic resistance and hence tumor recurrence and relapse.

UP.070

Elevated Levels of Extracellular Matrix Proteins Laminin, Fibulin 1 and Nidogen Are Associated with Urothelial Carcinoma of Urinary Bladder

Seth A, Khan R, Anand V, Rao N, Sharma A
All India Institute of Medical Sciences, New Delhi, India

Introduction and Objectives: The role of extracellular matrix proteins in various malignancies is being actively studied. They are suspected to play significant roles in intercellular interactions, cell motility, adhesion, invasion, migration and metastases. The selected extracellular matrix proteins-Laminin, Fibulin 1 and Nidogen have been studied in other cancers but not been explored in urothelial carcinoma.

Materials and Methods: In this study, 20 urothelial bladder carcinoma patients of different grades (6 low-grade non-muscle invasive, 7 high-grade non-muscle invasive and 7 muscle invasive), 10 BPH and 10 healthy volunteers were registered to determine circulatory levels of Laminin, Fibulin 1 and Nidogen by commercially available high sensitivity sandwich ELISA kit.

Results: The circulatory levels of Laminin was found to be significantly higher ($p < 0.001$) in UBC patients as compared to healthy control and BPH patients. Levels of Nidogen was also found to be significantly elevated ($p < 0.001$) in patients as compared to healthy subjects and BPH patients. The increase was higher in patients with muscle invasive disease for both these proteins. Fibulin1 levels were significantly higher ($p < 0.04$) in patients versus healthy subjects but it was not significant when compared to BPH patients. These results are tabulated below:

Conclusion: Elevated expression of these ECM proteins (Laminin, Fibulin 1 and Nidogen) in serum of urothelial bladder carcinoma patients may be a result of increased production, increased leakage or reduced degradation. Further studies may provide insight into the initiation, growth, invasiveness or metastases of these cancers.

UP.070, Table 1.

| | Mean ELISA levels in serum | | |
|-----------------|----------------------------|--------------|------------------|
| | UBC Patients | BPH Patients | Healthy Controls |
| Laminin (pg/ml) | 2049 | 957.51 | 577.44 |
| p-value | | 0.001 | 0.001 |
| Nidogen (ng/ml) | 12.45 | 7.62 | 6.82 |
| p-value | | 0.001 | 0.001 |
| Fibulin (ng/ml) | 4.33 | 3.98 | 2.13 |
| p-value | | 0.15 | 0.04 |

UP071

Detection of Self Renewal Genes NANOG and STAT3 Expression in Cancer Bladder Cells

Khairy Salem H¹, Ahmed Magdi El-Gohary H², Mahamoud Kamel S², Magdi Riad N², Gabr H²

¹Dept. of Urology, Faculty of Medicine, Cairo University, Cairo, Egypt; ²Dept. of Clinical and Chemical Pathology, Faculty of Medicine, Cairo University, Cairo, Egypt

Introduction and Objectives: To characterize bladder cancer stem cells at the molecular level, the expression of oncoproteins that have been implicated in the self-renewal of adult or embryonic stem cells, is detected. These oncoproteins include Nanog and STAT3. The aim of this study was to detect the presence of cancer stem cells of bladder cancer by detection of the two genes, Stat3 and Nanog in cultured bladder tumor biopsies.

Materials and Methods: Biopsies obtained from 15 recently diagnosed subjects with transitional cell carcinoma of the urinary bladder, tumor tissue was disrupted and cultured in serum free medium. Cancer stem cells were positively selected through serial passaging. RNA extraction and reverse transcription into cDNA was done. Nanog and STAT3 expression was detected through SYBR Green real time PCR. The genes expression levels were compared to their expression in 15 control normal bladder tissue biopsies. The levels of Nanog and STAT3 in both the cases and control groups were measured relative to the house keeping gene β -Actin, to which the values were normalized and expressed as a ratio.

Results: The mean value of Nanog gene expression was significantly higher in the patients group (2.693 ± 2.399) as compared to the control group with mean value (0.065 ± 0.05) with a highly significant statistical difference (P value = <0.001). The mean value of STAT3 gene expression was higher in the patients group (2.742 ± 2.91) as compared to the control group with mean value (0.212 ± 0.194) with high statistical significance (P value = 0.003). No statistical significant correlation was detected between the expression of Nanog and STAT3 expression and positive of history of Bilharziasis (P value = 0.744 and 0.395 respectively), presence of regional lymph node metastasis (P value = 0.363 and 0.242 respectively), stage of the tumor (P value = 0.2 and = 0.267 respectively), the grade of the tumor (P value = 0.242 and = 0.407 respectively).

Conclusion: Nanog and STAT3 genes expression in bladder cancer cultured cells support the conclusion that bladder cancer stem cells are implicated in bladder cancer.

UP072

The Advantages of Combined NBI Cystoscopy: Bipolar Plasma Vaporization Management in Large NMIBT Cases – A Retrospective Evaluation after a 2-Year Follow-Up

Geavlete B, Multescu R, Stanescu F, Moldoveanu C, Jecu M, Ene C, Adou L, Bulai C,

Geavlete P

"Saint John" Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objectives: A retrospective study was performed aiming to evaluate the efficacy of a multi-modal approach consisting in narrow band imaging (NBI) cystoscopy and bipolar plasma vaporization (BPV) when compared to the standard protocol represented by white light cystoscopy (WLC) and transurethral resection of bladder tumors (TURBT).

Materials and Methods: A total of 260 patients with apparently at least one bladder tumor over 3 cm were included in the trial. In the first group, 130 patients underwent conventional and NBI cystoscopy followed by BPV, while in a similar number of cases of the second arm, classical WLC and TURBT were applied. In all non-muscle invasive bladder tumors (NMIBT) standard monopolar Re-TUR was performed at 4-6 weeks after the initial intervention, followed by one year BCG immunotherapy. The follow-up protocol included abdominal ultrasound, urinary cytology and WLC, performed every 3 months for a period of 2 years.

Results: The obturator nerve stimulation, bladder wall perforation, mean hemoglobin level drop, postoperative bleeding, catheterization period and hospital stay were significantly reduced for the plasma vaporization technique by comparison to conventional resection. Concerning tumoral detection, the present data confirmed the NBI superiority when compared to standard WLC regardless of tumor stage. During standard Re-TUR the overall (6.3% versus 17.4%) and primary site (3.6% versus 12.8%) residual tumors' rates were significantly lower for the NBI-BPV group. The 1 (7.2% versus 18.3%) and 2 (11.5% versus 25.8%) year recurrence rates were substantially lower for the combined approach.

Conclusions: NBI cystoscopy significantly improved diagnostic accuracy, while bipolar technology showed a higher surgical efficiency, lower morbidity and faster postoperative recovery. The combined technique NBI-BPV offered a reduced rate of residual tumors at Re-TUR, as well as a substantially lower recurrence rate at 1 and 2 years.

UP073

NBI Cystoscopy in Routine Urological Practice: From Better Vision to Improved Therapeutic Management

Geavlete B, Multescu R, Jecu M, Stanescu F, Moldoveanu C, Adou L, Ene C, Bulai C,

Geavlete P

"Saint John" Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objectives: A single centre, retrospective trial was performed trying to assess the impact of NBI cystoscopy in cases of non-muscle invasive bladder tumors (NMIBT) by comparison to the standard approach. Our goal was to determine the superiority of the new method in terms of detection rates and subsequent postoperative treatment changes.

Materials and Methods: A total of 320 NMIBT suspected consecutive cases were enrolled in the study. The inclusion criteria were represented by hematuria, positive urinary cytology and/or ultrasound suspicion of bladder tumors. All patients underwent WLC and NBI cystoscopy. Standard transurethral resection of bladder tumors (TURBT) was performed for all lesions visible in WL and NBI guided resection for solely NBI observed tumors.

Results: The overall NMIBT and CIS patients' detection rates were significantly improved for the NBI evaluation (94.9% versus 88.1% and 95.7% versus 65.2%). Also, on a lesions' related basis, NBI cystoscopy emphasized a significantly superior diagnostic accuracy concerning the CIS, pTa and overall NMIBT formations (95.2% versus 60.3%, 92.8% versus 83.9% and 94.1% versus 82%). Additional tumors were diagnosed by NBI in a significantly higher proportion of CIS, pTa, pT1 and NMIBT patients (56.6% versus 8.7%, 28% versus 10.3%, 30.3% versus 10.6% and 31.6% versus 9.4%). As a result of these supplementary findings, the postoperative treatment was significantly improved in a substantial proportion of cases (15.4% versus 5.1%).

Conclusions: NBI cystoscopy represents a valuable diagnostic alternative in NMIBT patients, with significant improvement of tumor visual accuracy as well as detection rates. This approach provided a substantial amelioration to the risk category stratification and subsequent bladder cancer therapeutic management.

UP074

Incidental CT Bladder Wall Abnormalities: Harbinger or Herring?

Byler T, Nsouli I

SUNY Upstate Medical University, Syracuse, USA

Introduction and Objectives: Bladder wall abnormalities incidentally identified on radiographic study frequently lead to urologic evaluation of patients to exclude malignancy. A review of recent literature has demonstrated a lack of evidence guiding management of these

patients. We sought to review our experience in evaluating patients with an incidental radiographic finding of bladder wall abnormality to determine the probability of a positive work up. If risk of malignancy is not conferred by this finding, cystoscopy could be eliminated and save morbidity as well as health care expense.

Materials and Methods: After IRB approval, all screening cystoscopy performed at our medical center between June 2009 and June 2013 was identified. We identified all patients for which cystoscopy was performed for a radiographic bladder wall abnormality, defined as diffuse bladder wall thickening, focal bladder wall thickening, or intraluminal bladder mass. Patients with a history of bladder cancer, pelvic radiation, or hematuria were excluded.

Results: A total of 2483 cystoscopies were performed in 1418 unique patients. Forty (2%) were performed for radiographic bladder wall abnormalities in the absence of other indications for cystoscopy. Six of the 40 patients were excluded due to reported gross hematuria or micro hematuria. Eleven patients (32.4%) were evaluated for diffuse bladder wall thickening, of which two had suspicious findings on cystoscopy and had biopsy proven high grade urothelial carcinoma (one CIS, one muscle invasive). Fifteen patients (44.1%) were evaluated for focal bladder wall thickening; none had abnormal findings by cystoscopy. Of the eight patients (23.5%) evaluated for intraluminal bladder mass, four had mass identified on cystoscopy and were diagnosed with urothelial carcinoma (one high grade non-invasive, three low grade). Overall six of 34 patients (17.6%) were diagnosed with malignancy. Urine cytology results were available in five of these six patients and none were suspicious for malignancy. Demographic data including smoking behavior did not predict those with ultimate cancer diagnosis.

Conclusion: While generally non-specific for malignancy, incidental radiographic finding of bladder wall abnormality lead to diagnosis of urothelial carcinoma in greater than 15% of our patients. Three of these tumors were high grade tumors. This finding argues for routine cystoscopic evaluation of patients with radiographic bladder wall abnormality.

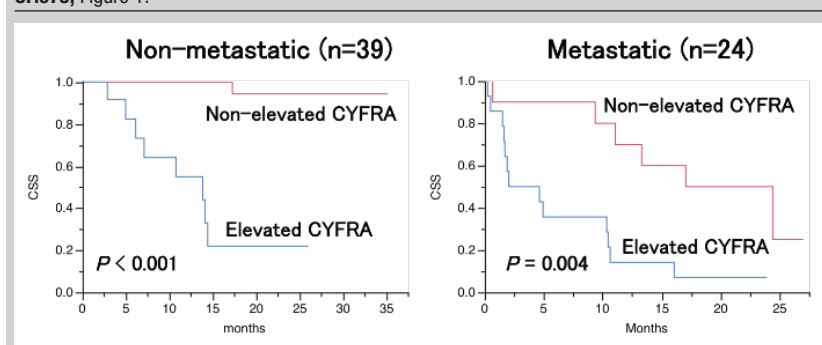
UP.075

Prognostic Value of Serum CYFRA 21-1 in Patients with T1G3 or Muscle Invasive Bladder Cancer

Yano A, Sugiyama H, Cho E, Sakaguchi K, Ishii N, Okada Y, Nagamatsu H, Morozumi M, Kawakami S, Yamada T
Saitama Medical Center, Saitama Medical University, Kawagoe, Japan

Introduction and Objectives: No serum prognosticator has been established in patients with potentially lethal bladder cancer. The aim of this study is to evaluate the prognostic value of

UP.075, Figure 1.



serum CYFRA 21-1 (CYFRA) in these patients.

Materials and Methods: Serum levels of CYFRA and C-reactive protein (CRP) were measured in 63 patients with T1G3 or muscle invasive bladder cancer between February 2011 and May 2013. Cut-off values of CYFRA and CRP were determined by receiver operating characteristic analyses. Prognostic values of age, stage, CYFRA and CRP were evaluated using multivariate analysis with a Cox proportional hazards model.

Results: The median (range) values of CYFRA, and CRP were 2.9 (1.1-251.5) ng/mL and 0.2 (0-19.4) mg/dL, respectively. The median (range) age and follow-up period was 71 (38-92) years and 13.9 (1.0-35.1) months. Prognostic values of age (≤ 70 vs. ≥ 71), stage (non-metastatic vs. metastatic), CYFRA (cut-off 3.6 ng/mL) and CRP (cut-off 1.8 mg/dL) were evaluated dichotomously. Multivariate analysis revealed that CYFRA ($P < 0.001$) and stage ($P = 0.010$) are significant and independent prognosticators. In 39 patients with non-metastatic disease, those with elevated CYFRA had 32.2-fold higher risk of cancer specific mortality than those with non-elevated CYFRA. In 24 patients with metastatic disease, those with elevated CYFRA had 4.32-fold higher risk of cancer specific mortality than those with non-elevated CYFRA.

Conclusion: The current results indicate that serum CYFRA level can be a prognosticator for patients with potentially lethal bladder cancer. Further prospective analyses will be needed to confirm our results.

UP.076

Urovison Is a Valuable Tool for Prediction of Recurrence in Non-Muscle Invasive Urothelial Bladder Cancer

Roshdy M, Abdelsalam A, Nour H, I.Kamel A
Theodor Bilharz Research Institute, Giza, Egypt

Introduction and Objectives: Urovison is a multitarget multicolor fluorescent in-situ hybridization (FISH) probe set combining four probes in a single probe set that detects aneuploidy of chromosomes 3, 7, and 17, and loss of the 9p21 locus in exfoliated cells in urine. Our study investigated the role of urovison

in predicting recurrence in patients with free cystoscopy and -ve cytology and detecting new cases of urothelial carcinoma of the bladder in patients complaining of haematuria with high risk of malignancy.

Materials and Methods: Our study conducted on 46 patients, Group (A) 30 patients had history of superficial urothelial carcinoma of the bladder and 16 patients complaining of gross haematuria subdivided after cystoscopy into Group (B) 8 patients with 1ry urothelial carcinoma and Group (c) 8 patients with cystitis. All patients were subjected to voided urine cytology and Urovison before cystoscopy \pm biopsy. Follow-up for Group (A), and one patient in Group (c) with +ve urovison was done for 18 months.

Results: The mean age of patients was 50.5 years. In Group (A) 15 patients (50%) were urovison +ve and 15 patients (50%) were urovison - ve, and all patients were negative for malignancy by cytology and the first cystoscopy was free. Recurrence were diagnosed in 11 patients (36.6%) with median time to recurrence was 4 months. Anticipatory +ve urovison preceded recurrence in 81.8%, and the NPV was 86.6%. There was a statistically significant ($P < 0.01$) difference in urovison results between low and high grade tumors. For Group (B), the sensitivity of urovison was equal to cytology (75%). For Group (C) only one patient was +ve FISH and developed low grade Ta TCC after 12 months. Bilharziasis had no influence on the predictive value of urovison.

Conclusion: Urovison helps to predict recurrence of urothelial carcinoma of the bladder and may change the surveillance protocols especially for patients with history of low grade tumors with -ve urovison to be with expanded intervals.

UP.077

Urine Cytology Is Unnecessary as a Routine Work Up in Detection of Recurrence in Patients with Non-Muscle Invasive Bladder Cancer

Moon K, Ji Y, Ko Y, Jung H, Song P
Yeungnam University College of Medicine, Daegu, South Korea

Introduction and Objectives: Despite of its low sensitivity, urine cytology has routinely been recommended as a diagnostic modality along with urinalysis and CT urography in contemporary guidelines for identification of the recurrence of non-muscle invasive bladder cancer (NMIBC). The purpose of this study is to determine whether urine cytology can effectively contribute to detection rates of tumor recurrence.

Materials and Methods: A total of 393 patients underwent transurethral resection of bladder tumor (TURBT) for NMIBC from January 2010 to June 2013. Among them, in 62 cases (15.8%), abnormal bladder lesions were identified by routine cystoscopy within 6 months. All of them completed follow-up cystoscopy, urine cytology, UA and CT every 3 months after initial TURBT. For suspicious lesions, all patients underwent re-TURBT or bladder biopsy. Patients were divided into 7 groups, thus the detection rate for tumor recurrence was assessed based on final histologic findings: Group I detected by urine cytology, Group II by CT, Group III by UA, Group IV by urine cytology plus CT, Group V by urine cytology plus UA, Group VI by CT plus UA, and Group VII by combination of all modalities, including urine cytology, CT, and UA.

Results: Final histologic outcome confirmed that 49 patients had tumor recurrence and the other 13 patients had inflammation. The overall tumor recurrence rate was 12.5% and mean interval from the initial TURBT was 4.8 ± 1.5 months. The mean size of histologically proven tumor masses was 1.3 ± 0.9 cm. Sensitivity from Group II (55.1%) and Group III (57.1%) was significantly higher than that from urine cytology (24.5%, $p=0.001$ and <0.001 , by McNemar's test). Sensitivity from Group VI (75.5%) was also higher than that from Group V (59.2%, $p=0.021$). However, the sensitivity of Group VII (77.6%) was statistically similar to that of Group VI, a group without urine cytology (75.5%, $p=0.870$).

Conclusion: The outcomes observed in this study demonstrated that urine cytology does not improve the detection rate of tumor recurrence within 6 month after initial TURBT. We suggest that urine cytology is an unnecessary evaluation modality for routine follow-up of bladder cancer.

UP078

Updated Analysis of Circulating Tumor Cells (CTCs) in Patients with Urothelial Cancer (UC) Undergoing Systemic Treatment: Implications across the Clinical Stages
Necchi A, Fina E, Giannatempo P, Colecchia M, Iacona C, Farè E, Raggi D, Nicolai N, Salvioni R, Gianni A, Mariani L, Daidone M, Cappelletti V

Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

Introduction and Objectives: CTCs from patients (pts) at different clinical stages were analyzed by a never explored experimental approach based on a combination of two techniques. Provision of this information may contribute to optimize tailored therapies.

Materials and Methods: Three cohorts were analyzed, partly enrolled in clinical trials: pts with muscle-invasive bladder cancer receiving neo-adjuvant (NA) sorafenib + chemotherapy (CT) (NCT01222676), and metastatic (M1) pts receiving first-line MVAC, and second-line (M2) anti-TGF β receptor ALK1 PF-03446962 in a phase 2 trial (NCT01620970). Five ml of whole blood were filtered by ScreenCell[®] Cyto devices and CTC status was assessed with centralized scoring by referral pathologists. Additional 5 ml of whole blood were processed by immunomagnetic beads (AdnaTestSelect[®] kit) and the expression level of a panel of markers (including *EPCAM* and *MUC1*) was studied using RT-multiplex PCR. The objective was the association with clinical endpoints (pathologic/clinical response, disease relapse).

Results: From 07/2012 to 1/2014, 65 pts (20 NA, 31 M1, and 14 M2) were enrolled. Rates of baseline CTC+ were: 92, 75, 91%, and 31, 50, 64% with the 2 techniques, respectively.

NA setting: All pts had a stepwise reduction of CTC count/5 ml blood by ScreenCell[®] (median baseline of 14 [0-40] to 0 [0-9] – end of treatment). Increase in circulating *EPCAM*±*MUC1* levels by CTC was seen in accordance with the 3 disease progressions (PD).

M1 setting: While there was a discrepancy between CTC signals and partial/complete response (PR/CR), a trend towards an increase in CTC levels was observed in 7/9 evaluable relapsers. Pts who relapsed had a median of 43 CTC/5 ml (IQR: 17-51.5) at the end of CT, while all the others had levels <13. *EPCAM* profile was not concordant in all cases (median 1.01 vs. 1 ng/ul). Interestingly, an increase in both CTC signals anticipated relapse in 5/9 evaluable responders (CR+PR).

M2 setting: an increase in CTC was documented by both methods in each case, in accordance with PD.

Conclusion: This combined technique was endowed with promising utility to anticipate the detection of clinical relapse. Refining molecular characterization might help designing informed clinical trials.

UP079

The New Quantitative Point of Care Assay UBC-Rapid: Evaluation in Bladder Cancer Diagnosis and Relevant Clinical Interferences
Lüdecke G, Hauptmann A, Pilatz A, Bschleipfer T, Weidner W
Dept. of Urology, University Clinic, Giessen, Germany

Introduction and Objectives: In bladder cancer, urine soluble markers ensure primary

diagnosis, follow-up control and screening investigations. The next step is the development of a quantitative POC-test. UBC- rapid[®] is transferred to the measurement system Omega reader. The data was checked in relation to clinical interferences and the presence of bladder cancer.

Materials and Methods: Urine probes were collected from healthy volunteers, patients with urinary tract infections, stones in kidney, ureter or bladder, catheter supported patients, ileum-conduit urine, endoscopically collected urine and from symptomatic bladder cancer patients in case of initial diagnosis and follow-up. The freshly collected urine was transferred into a stabilizing solution and than measured with an objective reader to quantify the amount of cytokeratin 8 and 18. The level of normal is up to 10 μ g/l, 10-19 μ g/l are uncertain and above 19 μ g/l are suspect for bladder cancer.

Results: Over the period of one year, we collected 178 probes: 23 controls, 68 TCC patients, 22 stone patients, 25 UTI, 15 non-TCC tumors, 15 catheter patients and 10 ileum-conduit patients. In controls the mean value was 7.46 μ g/l, only two cases were elevated, in TCC the mean was 68.74 μ g/l and showed a sensitivity of 72%. With the cut-off value of 19 μ g/l ileum-conduit urine was positive in 100%, stone patients were positive in 82%, catheter patients were positive in 81%, UTI were positive in 63%. Specificity in respect of exclusion criteria was 92%.

Conclusions: The new quantitative proteomic UBC-rapid test is powerful in primary diagnosis and follow-up. For daily use distinct exclusion parameters must be mentioned to prevent false positive results and to ensure a specificity of more than 90%. In case of bladder cancer the sensitivity of 72% is comparable to other test-systems. The biological background for this urine soluble tumor marker is equal to all proteomic markers based on bladder cancer cell lysis. Exclusion criteria for UBC-rapid should be recognized to ensure sophisticated diagnostics and the new quantification technique prevents a subjective color interpretation in POC-test cassettes.

UP080

Irritative LUTS as a Sign of Cancer: Is Flexible Cystoscopy Indicated?

Burge F¹, Nkwam N², Maliki M³, Wasden A⁴, Parkinson R⁴

¹Kettering General Hospital, Kettering, UK;

²United Lincolnshire Hospitals NHS Trust,

Lincoln, UK; ³Leicester General Hospital,

Leicester, UK; ⁴Nottingham University Hospitals NHS Trust, Nottingham, UK

Introduction and Objectives: The 'Blood in Pee' campaign was launched by Public Health England in the UK in October 2013. The aim was to increase the public's awareness of the

symptoms and signs of kidney and bladder cancer. The focus was on visible haematuria but the campaign also highlighted irritative lower urinary tract symptoms (LUTS) as possible symptoms of bladder cancer. Although the National Institute for Health and Care Excellence (NICE) guidelines include 'profound LUTS' and American Urological Association (AUA) guidelines include 'irritative symptoms in the absence of infection' as indications for flexible cystoscopy, to date, studies have not demonstrated a clear, consistent relationship between these symptoms and bladder cancer.

Materials and Methods: We performed a multi-center, prospective observational study of patients with LUTS presenting for flexible cystoscopy over a two-month period. Presence of blood on urinalysis and cystoscopic findings were recorded.

Results: Ninety flexible cystoscopies were performed for LUTS in 69 males and 21 females. The median age was 68 years (16-94). Bladder tumours were found in 3 patients. Other significant pathology was found in 12 patients - 1 bladder stone, 8 strictures, 2 inflammations and 1 colovesical fistula. Although 16 patients had haematuria on urinalysis only one patient had significant pathology (stricture). None of the patients diagnosed with bladder cancer had haematuria.

Conclusion: The incidence of bladder TCC in patients having a cystoscopy for LUTS is 3% in our study. Haematuria does not appear to be predictive of finding either benign or malignant pathology. We would suggest that in the presence of persistent or profound LUTS a flexible cystoscopy is an appropriate investigation and that the absence of haematuria on urinalysis is not reassuring and does not obviate the need for further investigation with flexible cystoscopy.

UP.081

'Blood in Pee': Are the British Public Any Clearer?

Sahu M, Rudd I, King J, Katmawi-Sabbagh S, Issa R, Perry M, Ayres B
St George's Hospital, London, UK

Introduction and Objectives: On 15 October 2013, a national campaign to raise awareness of the symptoms of bladder and kidney cancers was launched in the UK. It ran until 20 November 2013 and included TV, press, radio advertising and events. The aim was to raise awareness of blood in urine as a symptom of bladder and kidney cancers and to encourage people who have symptoms to go to their doctor straight away. We analyzed whether this national campaign resulted in increased patient awareness, increased haematuria referrals or cancer diagnosis.

Materials and Methods: Cystoscopy and imaging results in patients referred to the one-stop haematuria clinic between July 2013 and January 2014 were analyzed. Patients were divided

into 2 groups - Group A (pre-campaign) and Group B (post campaign). Patient characteristics, cystoscopy and imaging findings were recorded. Patients in Group B with visible haematuria were asked if they had heard of the campaign and if so by which method (TV, radio, newspaper, posters).

Results: The total number of patients referred during the study period was 108 (Group A) and 127 (Group B) respectively. In Group A, 72 patients (male 33; female 19) had visible haematuria and 36 (male 18; female 18) had non-visible haematuria. In Group B, 92 patients (male 74; female 18) had visible haematuria and 35 (male 18, female 17) had non-visible haematuria. Pathology was found in 21/108 (19%) patients in Group A and 27/127 (21%) in Group B. Cancers were found in 10 patients in Group A and 15 patients in Group B. Sixty six percent of patients had not heard of the national campaign. The TV advert was the most cited medium.

Conclusion: Patient awareness of this national campaign was poor locally. However, there

was an increase in haematuria referrals during the study period with a significant increase in cancer diagnosis.

UP.082

Micro-RNA Expressions in Cases with High Grade Non-Muscle-Invasive Bladder Cancer Which Don't Relapse following Intravesical Immunotherapy

Dursun F¹, Karademir K², Berber U², Ates F², Malkoc E², Soydan H²

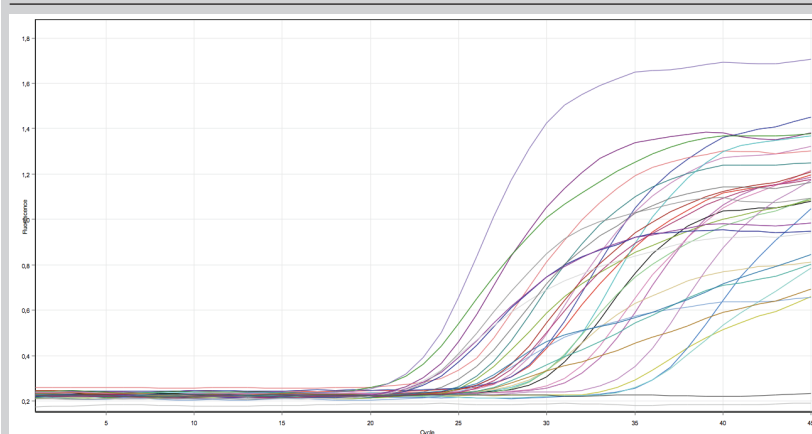
¹Gumussuyu Military Hospital, Istanbul, Turkey; ²GATA Haydarpasa Teaching Hospital, Istanbul, Turkey

Introduction and Objectives: Intravesical BCG therapy that follows transurethral resection (TUR) in T1 high grade tumors is the preferred adjuvant treatment. Yet indicators to predict the patients who will benefit the BCG treatment are not clear. Nowadays, studies about the roles of Micro-RNA (miRNA) on urothelial carcinoma pathogenesis are in progress and contributions of the data obtained to

UP.082, Table 1. List of the Micro RNAs Evaluated in the Study

| Micro - RNA | miRBase Accession | Micro- RNA | miRBase Accession |
|-------------|-------------------|------------|-------------------|
| miR-1 | MIMAT0000416 | miR-133a | MIMAT0000427 |
| miR-9 | MIMAT0000441 | miR-133b | MIMAT0000770 |
| miR-15a | MIMAT0000068 | miR-135b | MIMAT0000758 |
| miR-21 | MIMAT0000076 | miR-143 | MIMAT0000435 |
| miR-34a | MIMAT0000255 | miR-145 | MIMAT0000437 |
| miR-34c | MIMAT0000686 | miR-182 | MIMAT0000259 |
| miR-99a | MIMAT0000097 | miR-200a | MIMAT0000682 |
| miR-100 | MIMAT0000098 | miR-200c | MIMAT0000617 |
| miR-125b | MIMAT0000423 | miR-204 | MIMAT0000265 |
| miR-127 | MIMAT00004604 | miR-205 | MIMAT0000266 |
| miR-129 | MIMAT0000242 | miR-211 | MIMAT0000268 |
| miR-130b | MIMAT0000691 | miR-518c | MIMAT0002848 |

UP.082, Figure 1. RT-PCR Curves Generated for Micro-RNAs for a Sample Tissue



the treatment process are being evaluated. In our study, we evaluated that miRNA expression profiles in T1 high grade tumors can predict the patients who may benefit BCG treatment.

Materials and Methods: Fifteen patients who had intravesical BCG treatment due to pT1 high grade urothelial carcinoma, and have no relapse in a mean follow-up period of 55 months are evaluated. Twenty four micro-RNA, which have role in tumor progress steps on tumor tissues and normal urothelium tissue, are compared in terms of expression profiles. miRNAs are purified from formalin-fixed, paraffin-embedded tissue sections. After cDNA synthesis with a series of reactions, miRNA expression levels are detected with real time reverse transcriptase reactions (RT-PCR). Relative quantification technique is used for detecting the miRNA expression levels. For relative quantification of miRNAs, normalization to proper reference genes is mandatory and we used small RNA RNU6-2 for normalization in this study.

Results: In urothelial carcinoma samples, mir-21 (1.27 fold ↑), mir-135b (3.22 fold ↑), mir-145 (3.24 fold ↑), mir-182 (3.79 fold ↑), mir-200a (2.22 fold ↑) and mir-205 (7.56 fold ↑) expressions were increased. Mir-99a (6.56 fold ↓), mir-100 (5.45 fold ↓), mir-129 (4.16 fold ↓), mir-133a (6.1 fold ↓), mir-143 (13.9 fold ↓) expressions were decreased. In most of the patients, while in particular mir-100, mir-133a, mir-133b, mir-143, mir-204 and mir-211 expressions are decreasing, mir-205 expression is observed increasing.

Conclusion: Due to the fact that microRNAs in urothelial carcinoma are expressed differently compared to the ones in normal urothelium, microRNAs might have important roles in urothelial carcinoma pathogenesis. In predicting patients who may benefit BCG treatment, mir-100, mir-133a, mir-133b, mir-143, mir-204, mir-205, mir-211 can be used as indicators. In order to reveal explicit roles of microRNAs in the path of urothelial carcinoma and to intergate them in the treatment process, detailed functional studies that include more cases are needed.

UP.083

Routine Urine Cytology Has Little Utility during the Follow-Up of Patients with Bladder Cancer

Ferreira C, Reis F, Correia T, Cardoso A, Cerqueira M, Almeida M, Prisco R
Hospital Pedro Hispano, Matosinhos, Portugal

Introduction and Objectives: Urine cytology has long been advocated to be an adjuvant tool of follow-up to prevent recurrence or progression of bladder tumours. We aimed to determine the impact of urine cytologies on urologists' attitude concerning follow-up schedule for cystoscopy and imaging.

Materials and Methods: During 2012, in our

UP.083, Table 1. Cystoscopic and Cytologic Findings and Histological Confirmation

| | Benign cytology | Malignant or suspicious cytology | Histologic Recurrence |
|------------------------------|-----------------|----------------------------------|-----------------------|
| Benign Cystoscopy, n (%) | 235 (95%) | 12 (5%) | 0* |
| Suspicious Cystoscopy, n (%) | 40 (83.3%) | 8 (20%) | 28 (58%) |
| Total | 275 (93%) | 20 (7%) | 295 |

Department, a total of 295 follow-up cystoscopies were performed to patients with a history of bladder cancer. The same number of cytologic (voided) urine specimens was collected just before each endoscopic exam. Urine cytology results were classified as malignant/suspicious or benign. We compared cystoscopic with cytologic findings and its correlation with histology in case of suspicion of recurrence. The utility of urine cytology outcomes was also evaluated considering changes in the follow-up schedule.

Results: Cystoscopic and cytologic findings are presented on Table 1. All patients with a suspicious cystoscopy performed a transurethral resection of bladder (TURB). Twelve patients with a suspicious cytology but with a benign cystoscopy had subsequent negative urinary tests and any suspicious endoscopic or histologic or tomographic recurrence was detected. Of these, just 5 patients (42%) were reevaluated by repeated cytology, cystoscopy and/or upper urinary tract imaging in less than 3 months. One patient performed a randomized TURB, which was negative. The urine cytology outcomes did not interfere with the follow-up schedule of the other 6 patients and, their subsequent cystoscopies and cytologies were negative.

Conclusion: Urine cytology seems to add little to the follow-up outcomes and urologists' attitude when cystoscopy is performed regularly in patients with history of bladder cancer. On contrary, urine cytology can result in an elevated rate of false positives, especially in case of normal cystoscopies resulting in additional expensive and morbid investigations.

UP.084

Impact of Glandular Differentiation of Urothelial Carcinoma on Disease Specific Outcome in Patients Undergoing Radical Cystectomy and Urinary Diversion

Laymon M, Harraz A, Mahmoud O, Mosbah A, Abol-Enein H
Urology and Nephrology Center, Mansoura, Egypt

Introduction and Objectives: Urothelial carcinoma (UC) is the commonest pathological entity of patients undergoing radical cystectomy for muscle invasive bladder cancer. Glandular differentiation (UC/GD) is a pathological subtype that is commonly encountered in pathological specimens and defined as presence of true glandular spaces with mucin in them. The clinical significance of glandular

differentiation on disease specific outcome is inadequately addressed in the literature. We compared the impact of glandular differentiation on disease specific survival with adenocarcinoma and UC (TCC).

Materials and Methods: A retrospective analysis of patients' charts who underwent radical cystectomy and diversion between January 2004 and September 2009 was conducted to retrieve patients with the diagnosis UC/GD and adenocarcinoma. A matched group with histological diagnosis UC was used as reference group. Patients' characteristics were compared between groups to ensure homogeneity using chi-square test and independent sample *t* test. Disease-specific survival was compared between groups using Kaplan-Meier survival curves with log rank test for univariable analysis and Cox regression analysis for multivariable analysis.

Results: UC/GD and adenocarcinoma were present in 59 (5.9%) and 49 (4.5%) patients, respectively. Groups were comparable as regard age ($p=0.068$), body mass index (BMI) ($p=0.283$), presence of medical com-morbidities ($p=0.562$), tumor stage ($p=0.582$), lymph node status ($p=0.577$) and type of urinary diversion ($p=0.771$). Only gender was significantly different between groups ($p=0.002$). On univariable analysis, BMI ($p=0.041$), occurrence of early postoperative complications ($p=0.013$), pathological cell type ($p=0.026$), tumor grade ($p=0.033$) and tumor lymph node status ($p<0.001$) were significantly associated with worse disease-specific survival. By multivariable analysis, presence of UC/GD (HR: 2.9; 95% CI: 1.2-6.8; $p=0.013$) and positive lymph node status (HR: 5.9; 95%CI: 2.8-12.5; $p<0.001$) were independent predictors of worse disease-specific survival.

Conclusions: UC/GD is a pathological sub-entity that carries worse prognosis than adenocarcinoma and UC. Patients with UC/GD should be considered at higher risk of disease recurrence and should be closely monitored.

UP.085

Radical Cystectomy in Octogenarians

Garde H¹, Galante I¹, Gómez Á², Gómiz J¹, San José L³, Moreno J¹

¹Clinico San Carlos Hospital, Madrid, Spain;

²Clinico San Carlos Gómez, Madrid, Spain;

³Infanta Sofía Hospital, Madrid, Spain

Introduction and Objectives: The increasing

life expectancy and the proportion of octogenarians makes radical cystectomy (RC) take place in a larger number of people in this age group who have muscle-invasive bladder cancer (MIBC). Objective: To analyse overall survival (OS) and complications in our serie.

Materials and Methods: Retrospective descriptive analysis of patients older than 80 years undergoing RC between 2000 and 2012 years. Surgical risk (ASA), hospital stay, complications (Clavien) and type of urinary diversion have been evaluated. Variables expressed in medians. Kaplan-Meier and Chi square tests. Statistical analysis with SPSS (15.0).

Results: A total of 33 patients were included. Mean age of 81.9 (\pm 1.8) years. Sex: 24 (72.7%) males and 9 (27.3%) women. Surgical Risk: ASA II 9p (27.3%), ASA III 23p (69.7%) and ASA IV 1p (3%). Urinary diversion: 19p (57.6%) ureteroileostomy and 14p (42.4%) bilateral cutaneous ureterostomy. Median stay: 19 days (14-30). Pathology, T0: 1p (3%), T1: 4p (12.1%), T2: 11p (33.3%), T3: 13p (39.4%), T4 4p (12.1%), Nx: 9p (12%), N0: 13p (39.4%), N1: 3p (9.1%), N2: 5p (15.2%). The most frequent complications were pneumonia in 6p (18.2%), surgical wound infection 6p (18.2%). Lymphadenectomy performance did not involve a significant increase in complications. Six patients (18.2%) died in the immediate postoperative period, 5 of them from respiratory complications. Median survival of the rest of serie: 24 months (15.1 to 32.8). There are significant differences ($p < 0.01$) in OS if there is lymph node involvement, with a median survival of 33 months (11.1 to 54.5) for the pN0 group vs. 14m (12.2 to 15.7).

Conclusions: It is crucial an overall assessment of the patient and not just only the chronological age. Lymphadenectomy do not have a greater number of complications and brings benefits in terms of survival in patients with positive nodes.

UP086

Can We Select Partial Cystectomy for Treatment of Muscle Invasive Bladder Tumor?

Kim B, Jung W, Ha J, Park C, Kim C
Keimyung University, Daegu, South Korea

Introduction and Objectives: The radical cystectomy is the treatment of choice of invasive bladder tumor. But, some patients do not want a definitive surgery or could not receive a major surgery due to medical comorbidities. We investigated the results of partial cystectomy of muscle invasive bladder tumor.

Materials and Methods: Between January 2000 and January 2013, 30 patients who underwent partial cystectomy after diagnosis of muscle invasive bladder tumor by transurethral resection of bladder tumor. Patients' age and sex were analyzed, and size, location and multifocality of

tumor, combined with carcinoma *in situ*, stage, recurrence and survival were also analyzed.

Results: The patients' mean age was 65 years (range 32-81 years) and their mean follow-up period was 51.6 months (range, 6-163 months). Of the 30 patients, the number of patients in urothelial cell carcinoma was 23. Adenocarcinoma, small cell carcinoma, leiomyosarcoma and paraganglioma was 3, 2, 1 and 1, respectively. In the urothelial cell carcinoma clinically T2 and T3 were 13 and 10, of these patients, 3 patients had lymph node metastasis. Mean size of tumor was 3.1cm (range 1.3-5cm), 3 patients had multiple tumor and 2 patients had CIS lesion. The number of patient in location of lateral wall, dome, posterior wall and around ureteral orifice were 5, 5, 3 and 10, respectively. Six were margin positive after partial cystectomy. In case of multiple mass of broad CIS lesion, intravesical BCG therapy was done before partial cystectomy. Of the 20 patients who do not have lymphnode metastasis, 15 patients (75%) were not recurred during mean 67.9 months (range 18-163 months). Five patients (25%) were recurred at mean 11.1 months (range 8-19 months). Superficial recurrence, invasive recurrence, lymphnode metastasis and distant metastasis were 1, 2, 3 and 1, respectively. In univariate analysis, the rate of recurrence was associated with broad CIS ($p=0.017$), margin positive ($p=0.005$) and multiple tumors ($p=0.045$). Only CIS was associated with recurrence at multivariate analysis ($p=0.018$).

Conclusion: Partial cystectomy shows relatively satisfactory result in muscle invasive bladder tumor. Partial cystectomy could be considered as a treatment option for the patient who does not have broad CIS.

UP087

Impact of Photodynamic-Assisted Transurethral Bladder Tumor Resection on Survival after Radical Cystectomy for Bladder Cancer

Gakis G, Ngamsri T, Hassan F, Mischinger J, Schwentner C, Rausch S, Renninger M, Stenzl A
Dept. of Urology, University Hospital Tübingen, Tübingen, Germany

Introduction and Objectives: To investigate whether PDD-guided transurethral bladder tumor resection (TUR-BT) was of prognostic value in patients who underwent subsequently radical cystectomy (RC) for bladder cancer (BC).

Materials and Methods: A consecutive series of 224 patients undergoing RC and bilateral pelvic lymphadenectomy between 2002 and 2010. We retrospectively investigated whether patients had undergone PDD-guided (hexaminolevulinate (HAL) / 5-aminolevulinate (ALA)) vs. white-light (WL-) TUR-BT prior to RC. The median follow-up was 29 months

(IQR: 8-59). A PDD-based scoring model was developed based on regression estimates of significant parameters in the final multivariable analysis to predict recurrence after RC. The predictive accuracy of the model was evaluated using the c-index.

Results: Of the 224 patients, 66 (29.5%) underwent HAL-TUR-BT, 23 (10.3%) ALA-TUR-BT and 135 (60.2%) WL-TUR-BT before RC. In univariable analysis, PDD-guided TUR-BT before RC was associated with a higher number of TUR-BTs before RC ($p=0.002$) and a longer time interval between the first TUR-BT (confirming BC) and RC ($p=0.044$). No significant differences were found between the three groups [HAL vs. ALA (PDD) vs. WL] with regard to age, gender, tumor stage ($\geq pT3a$ vs. $\leq pT2b$ and $\leq pT1$ vs. $\geq pT2a$), pT0 at RC, pN-stage, STSMs, LVI, tumor size, multifocality, grade, prior BCG-therapy, hydronephrosis at RC, concomitant CIS at RC and non-pure urothelial carcinoma. The median 3-year-RFS was 77.8% in patients with HAL-TUR-BT, 43.8% in ALA-TUR-BT and 52.4% with WL-TUR-BT before RC ($p=0.002$ for HAL vs. ALA/WL). In patients who underwent only one TUR-BT and subsequently RC within 90 days, 3-year RFS was 71.3% for PDD-TUR-BT compared to 51.1% for WL-TUR-BT ($p=0.044$). In multivariable analysis, absence of PDD-TUR-BT ($p=0.002$), $\geq pT3a$ -stage ($p=0.033$), pN+1-stage ($p<0.001$) and positive STSMs ($p=0.032$) were independent predictors for recurrence after RC. The 3-year RFS in patients with a score 0 (low-risk), 1-2 (intermediate-risk) and 3-5 (high-risk) was 91.8%, 68.1% and 15.9%, respectively ($p<0.001$). Consideration of the variable PDD-TUR-BT in the final model increased its predictive accuracy by 1.5% with a c-index of 0.787 ($p=0.027$).

Conclusion: This is the first series indicating that PDD-guided TUR-BT is associated with improved RFS after RC for BC.

UP089

Prognosis of Upper Tract Urothelial Cancer and Bladder Cancer

Kim K, Jeon C, Kim M, Jeong C, Kwak C, Kim H, Ku J
Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objectives: The aim of this study was to compare the prognosis of upper urinary tract (UUT)-urothelial carcinoma (UC) and UC of the bladder (UCB) by pathological staging in patients treated with radical surgery.

Materials and Methods: The study population comprised 335 and 302 consecutive radical surgery cases for UUT-UC and UCB performed between 1991 and 2010. Five-year recurrence-free (RFS) and cancer-specific survival (CSS) rates were analyzed. The median follow-up

period of all subjects was 59.3 months (range 0.1 to 261.0).

Results: No differences in median patient age, distribution of pathologic T stage, or rates of positive surgical margin were observed. The UUT-UC group showed more frequent hydronephrosis (48.1% vs. 20.2%, $p < 0.001$) than that in the UCB group. In contrast, the UCB group showed more frequent grade III tumors (28.1% vs. 58.6%, $p < 0.001$), lymphovascular invasion (18.8% vs. 35.8%, $p < 0.001$), and associated carcinoma *in situ* (9.0% vs. 21.9%, $p < 0.001$) than those in the UUT-UC group. The 5-year RFS rates in the UUT-UC and UCB groups were 77.0% and 75.9%, respectively ($p = 0.546$). No significant differences in RFS rates were observed between the pathological T stage subgroups. The 5-year CSS rates in the UUT-UC and UCB groups were 76.1% and 76.2%, respectively ($p = 0.462$). No significant differences in CSS rates were shown between the pathologic T stage subgroups.

Conclusion: UUT-UC and UCB showed comparable prognosis at identical stages. However, because of the retrospective study design, our results should be verified in a prospective study.

UP090

Is TURBT Able to Cure High Risk Recurrent Superficial or Muscle Invasive Bladder Cancer: Factors Resulting in pT0 Radical Cystectomy Specimens-Results of Two UK Centres

Mazaris E¹, Lukacs S¹, Nafie S², Gibbons N¹, Boustead G², Hrouda D¹

¹Charing Cross Hospital Imperial College Healthcare NHS Trust, London, UK; ²Lister Hospital, Stevenage, UK

Introduction and Objectives: In 76% of radical cystectomy patients there is discrepancy between the initial stage at transurethral resection and the final pathological stage of the cystectomy specimen. More specifically in contemporary series the absence of tumour at radical cystectomy specimens (stage pT0) is estimated at 5-25%. Our aim was to determine which factors contributed to the absence of tumour in our series of radical cystectomy patients.

Materials and Methods: A total of 301 patients underwent a radical cystectomy in two tertiary referral cancer centres in the UK, over the last 10 years (January 2002-January 2012) at the Lister Hospital in Stevenage and over 7 years (January 2006-December 2012) at Imperial College NHS Trust in London. A thorough analysis of the patients' files was performed who had no residual tumour on the cystectomy specimen (pT0). Possible factors contributing to such a result were described and a systematic analysis of the relevant literature was performed.

Results: Nineteen patients had a pT0 stage after radical cystectomy. Sixteen of them had

transitional cell carcinoma (one with squamous and one with sarcomatoid differentiation), two of them had squamous cell carcinoma and one of them had adenocarcinoma of the bladder on the initial transurethral resection. None of the tumours presented lymphovascular invasion. Eighteen patients are still alive and one died 45 months postoperatively from a cardiac cause.

Conclusions: We identified four independent factors which potentially could have contributed towards a pT0 cystectomy result. These included the completeness of the transurethral resection, the experience of the surgeon, the application of a standardized technique for transurethral resection and the absence of lymphovascular invasion on the TURBT specimen. The time to cystectomy in our series did not have a negative effect on pT0 final pathology result.

UP091

Combined Multimodalities Treatment Protocol for Patients with Muscle Invasive Transitional Carcinoma of the Bladder: Results at 24 Months

Roshdy M¹, Elnahas T², Nour H¹

¹Dept. of Urology, Theodor Bilharz Research Institute, Giza, Egypt; ²Dept. of Medical Oncology, Kasr Eleiny School of Medicine, Cairo University, Cairo, Egypt

Introduction and Objectives: Assess early oncological results of bladder preservation protocol for patients with muscle invasive clinically localized TCC of the bladder.

Materials and Methods: Twenty two patients chose multimodality treatment protocol for their clinically organ confined muscle invasive TCC of the bladder were included in this study. Tumor size, number, stage, grade and location within the bladder were recorded. Patients were offered complete resection of all visible tumors, then, two cycles of chemotherapy consisting of cisplatin 75mg/m² day1 and gemcitabine 1000mg/m² day 1 & 8, followed concurrent chemo-radiotherapy in the form of: 1) phase 1: 4500cGy/25 fractions to whole pelvis concomitant with chemotherapy by C.M.V-regimen (cisplatin 70mg/m² day 1, methotrexate 30mg/m² day 1 & 8 and vinblastine 4 mg/m² day 1 & 8) followed by cystoscopic assessment and biopsy. 2) phase 2: If achieved C.R: patients will continue radiation therapy to radical dose 6000cGy to the urinary bladder by 3 D conformal radiotherapy. If not achieved C.R: patients with persistent muscle invasive TCC were advised to proceed for radical cystectomy. Patients downstaged to non-muscle invasive (NMI) TCC were treated accordingly with intravesical BCG & follow-up. Patients with C.R. had urine cytology and check cystoscopy every 3 months and a CT scan of the abdomen and pelvis yearly.

Results: Median age was 58 (51-70). Tumor free with intact bladder survival at 2 years was 73% (14 patients), 3 patients (13%) developed NMI

TCC and were managed accordingly. 5 patients (24%) failed to respond to treatment protocol either at the first follow-up (2 patients) or within the follow-up period (3 patients). Tumor size, number and grade were independent factors for tumor recurrence and/or failure of response.

Conclusion: Bladder preservation protocol for low grade low volume muscle invasive TCC has promising results although still suboptimal to radical cystectomy. It has to be in the urologist mind and armamentarium to be offered to patients refusing standard surgical treatment option.

UP092

The Effect of Applying Enhanced Recovery after Surgery (ERAS) Protocol on the Outcome Radical Cystectomy in a Tertiary Care Hospital

Salem S, Sultan M, Selim M, El-sherif E, Abdallah M, Gamal El Deen A, Badreldin M
Menoufia University, Menoufia, Egypt

Introduction and Objectives: With a complication rate reaching up to 64% at 90 days, despite improvements in surgical technique, anesthesia and perioperative care, radical cystectomy is still considered a major cause of morbidity. Initiated in the 1990s, enhanced recovery after surgery programs (ERAS), have become an important tool of perioperative management of such surgeries. This study was designed to identify the effect of application of ERAS on the outcome of patients undergoing radical cystectomy in at Menoufia University Hospital.

Materials and Methods: After obtaining ethical committee approval, we retrospectively reviewed radical cystectomy database starting from January 2007 to December 2013. ERAS was applied starting from June 2009. ERAS was developed by a committee of urology department members, nutrition, and anesthetists. Our aim was to present adequate medical care to the patients, enhance perioperative counseling, improve perioperative nutritional status, decreased operative and postoperative pain and stress, decrease perioperative complication, and decrease hospital stay. In particular points we modified the ERAS pathway to suit our population as we have high incidence of hepatitis C patients and poor preoperative nutritional status. We identified 207 patients who underwent open radical cystectomy. We divided the patients into two groups: standard care (42 patients before application of ERAS) and 163 ERAS patients.

Results: We did not find any statistically significant difference in the mortality rate between both groups. Post-operative stay is significantly shorter in ERAS group (13.9±3.6 days) than non-ERAS group (19.2±4.7 days). The complication rate, according to the modified Clavien classification, was significantly lower in the ERAS group (17.8% vs. 42.9%).

Conclusion: The perioperative management through structured ERAS programs appears to

play a major role in patient outcome. ERAS programs definitely changed the outcome of radical cystectomy at our institution.

UP093

The Extent of Variant Histology Does Not Impact Survival in Patients with Urothelial Carcinoma of the Bladder Treated with Radical Cystectomy

Soave A¹, Schmidt S¹, Minner S², Engel O¹, Kluth L¹, John L¹, Hansen J¹, Chun F¹, Steurer S², Dahlem R¹, Fisch M¹, Rink M¹

¹Dept. of Urology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany;

²Dept. of Pathology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Introduction and Objectives: Variant histologies of urothelial carcinoma of the bladder (UCB) seem to be associated with unfavorable outcomes in patients treated with radical cystectomy (RC), although diverse findings have been reported. The impact of the extent of variant histology on outcomes is unclear. The aim of this study is to evaluate the impact of variant histologies and its extent on oncological outcomes in a RC cohort.

Materials and Methods: We collected data of 485 UCB patients treated with RC without neoadjuvant chemotherapy at an academic center between 1996 and 2011. Pathologic specimens were reviewed for presence and extent of variant histologies by dedicated uro-pathologists. For analyses we used the following categories: 1) Pure UCB vs. UCB with variant histology; 2) Pure UCB vs. UCB with squamous cell differentiation vs. UCB with non-squamous cell differentiation. The extent of variant histology was analyzed as continuous and categorized variable. Cox regression models evaluated associations with disease recurrence and cancer-specific survival.

Results: UCB with variant histology was present in 96 patients (20%) with squamous cell differentiation (12.4%) being most common. In patients with variant histology the extent ranged from 5% to 95%, with a median of 60%. Variant histology was associated with female gender, advanced tumor stage, presence of concomitant CIS and administration of adjuvant chemotherapy (p-values ≤ 0.001). Variant histology was associated with disease recurrence (p=0.049) and cancer-specific mortality (p=0.02) in Kaplan-Meier analyses. Compared to pure UCB, variant histology of non-squamous cell differentiation, but not squamous cell differentiation, was associated with disease recurrence and cancer-specific mortality (pairwise p-values ≤ 0.002). Using a cut-off of 60%, the extent was not associated with either endpoint compared to pure UCB in Kaplan-Meier analyses. When analyzing the extent as continuous variable, increased extent was associated with cancer-specific mortality

in univariable analysis (HR 1.26; 95%CI 1.02-1.57; p=0.032). In multivariable analyses neither presence nor extent of variant histology were predictors of outcomes.

Conclusions: Variant histology can be observed in 20% of UCB patients treated with RC. Presence of non-squamous cell differentiation and increased extent of variant histology are associated with oncological outcomes. However, this effect seems weak, as it did not remain significant in multivariable analyses.

UP094

Do Tumor Necrosis and Tumor Diameter Impact Oncological Outcomes of Patients with Urothelial Carcinoma of the Bladder Treated with Radical Cystectomy?

Soave A¹, John L¹, Minner S², Engel O¹, Hansen J¹, Schmidt S¹, Kluth L¹, Chun F¹, Steurer S², Dahlem R¹, Fisch M¹, Rink M¹

¹Dept. of Urology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany;

²Dept. of Pathology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Introduction and Objectives: Tumor necrosis is an important factor for outcome prognostication in upper tract urothelial carcinoma, but the effect on outcomes in urothelial carcinoma of the bladder (UCB) remains unclear. The aim of this study is to investigate the association of tumor necrosis and tumor diameter as well as their impact on UCB outcomes in a contemporary radical cystectomy (RC) cohort.

Materials and Methods: We treated 511 consecutive patients with RC without neoadjuvant chemotherapy for UCB between 1996 and 2011. All pathologic specimens were reviewed by dedicated uro-pathologists for the largest residual tumor diameter at RC and for presence and extent of tumor necrosis. Tumor diameters were divided in ≤ 3 cm and >3 cm and patients with presence of tumor necrosis were stratified in two groups using a cut-off of 10%. Cox regression models evaluated the association with disease recurrence and cancer-specific survival, respectively.

Results: In total, 157 (30.4%) patients had a residual tumor of >3 cm and 156 (30.2%) patients had presence of tumor necrosis with 34 (6.6%) of these having $>10\%$ tumor necrosis, respectively. Tumor diameter and necrosis were significantly correlated: 83% of tumors ≤ 3 cm showed no tumor necrosis and 61.5% of tumors >3 cm had tumor necrosis, respectively ($r=0.481$; p<0.001). Both, a tumor diameter >3 cm and presence of tumor necrosis, were significantly associated with an older age, advanced pT-stage, higher grade, lymph node metastasis, positive margin status, presence of LVI and administration of adjuvant chemotherapy (all p-values ≤ 0.012). A tumor diameter >3 cm and presence of tumor necrosis were associated with disease recurrence and cancer-specific

mortality in Kaplan-Meier analyses, respectively (p-values <0.001). There was no difference in survival between patients with $<10\%$ and $\geq 10\%$ tumor necrosis. In multivariable analyses that adjusted for standard clinico-pathologic parameters, a tumor diameter >3 cm was a predictor for cancer-specific mortality (HR 1.48; 95%CI 1.044-2.086; p=0.027). In contrast, tumor necrosis was not independently associated with outcomes in multivariable analysis.

Conclusions: Tumor diameter and necrosis are correlated and associated with features of aggressive tumor biology as well as oncological outcomes in univariable analyses. A tumor diameter >3 cm represents an independent predictor for cancer-specific mortality. These findings may help in patient counseling and treatment decision-making.

UP095

Primary Mucosa Associated Lymphoid Tissue Bladder Cancer Case Series: 12-Month Outcomes

Jina N¹, Lee M¹, Bariol S^{2,3}, Patel M^{2,3}, Aslan P⁴, Louie-Johnsun M⁵, Nicholson T⁶, Cozzi P⁴, Collins R⁷, Malouf D⁴, Maclean F⁸, Burchett I⁸, Eade T⁹, Chalasani V¹

¹Hornsby Hospital, Hornsby, Sydney, Australia;

²University of Sydney, Sydney, Australia;

³Westmead Hospital, Westmead, Sydney, Australia;

⁴St George's Hospital, Kogarah, Sydney, Australia;

⁵Gosford Hospital, Gosford, Australia;

⁶Central West Urology, Orange, Australia;

⁷Sydney Adventist Hospital, Sydney, Australia;

⁸Douglas Hanly Moir, Sydney, Australia;

⁹Royal North Shore Hospital, Sydney, Australia

Introduction and Objectives: Primary mucosa associated lymphoid tissue (MALT) tumours located in the bladder are very rare. As such, there is no consensus on the management of this condition, however previous authors have managed MALT tumours with transurethral resection and adjuvant radiotherapy. We present ten cases of primary MALT in the bladder with a primary aim of evaluating disease free outcomes, and a secondary aim of describing the clinical presentation and immunohistotyping.

Materials and Methods: We performed a retrospective review from 2009 of all the cases of MALT from a single pathological database in New South Wales, Australia.

Results: There were ten patients in our series. The average age was 68 (range 48-87), predominantly females (7:3) and all non-smokers. Four patients presented with macroscopic haematuria, three with recurrent urinary tract infections and two with storage urinary symptoms. Pre-operative imaging was suggestive of a bladder wall tumour in all patients when performed and consequently each patient was treated with a TURBT. All patients except two received adjuvant treatment with three patients receiving chemotherapy, three patients receiving

radiotherapy and two patients receiving a combination. One patient declined adjuvant treatment and the other is yet to be referred for adjuvant treatment. All patients who received check cystoscopies at one year were clear of disease. Their symptoms had also resolved. These patients typically have a background of chronic antigen stimulation/infection and the histological infiltrate includes aggregates of CD20 positive B-lymphocytes often with plasma cells which are monotypic for immunoglobulin light chain. The plasma cell differentiation may be extreme and a dominant histologic feature necessitating clinical and hematologic consideration and exclusion of extramedullary plasmacytoma and plasma cell myeloma. The classification of MALT is based on the WHO Classification of Tumours of Haematopoietic and lymphoid tissues 2008.

Conclusion: We present the largest series of MALT bladder tumour to date. Although there are no guidelines on tumour management, all patients in our series have responded well with TURBT and adjuvant therapy. Treatment outcomes were excellent with all patients who were followed being disease free at one year.

UP096

The Effects of Sodium Hyaluronate and Carboxymethylcellulose for Reducing the Risk of Early Postoperative Adhesive Bowel Obstruction after Laparoscopic Radical Cystectomy: A Multicenter, Single-Blinded, Randomized Controlled Study
Chung J¹, Kim T², Lee J², Chung M², Goh H¹, Lee S³

¹Hanyang University Medical Center, Seoul, South Korea; ²Pusan National University Hospital, Busan, South Korea; ³Hanyang University Medical Center, Guri, South Korea

Introduction and Objectives: Postoperative adhesive bowel obstruction (PABO) increases morbidity and delays recovery. For preventing these obstructions, sodium hyaluronate and carboxymethylcellulose (Guardix®, Hanmi Medical Co., KOR), which is anti-adhesion barrier solution, is used in various surgical fields. However, to our knowledge there is little study that has evaluated the efficacy of Guardix® in urologic surgery. We investigated the effect of Guardix® for preventing postoperative adhesive bowel obstruction after laparoscopic radical cystectomy with urinary diversion.

Materials and Methods: The subjects were 57 patients diagnosed with bladder cancer who underwent laparoscopic radical cystectomy with urinary diversion between May 2007 and July 2011. Guardix® was used or not by 2 different surgeons. We prospectively compared the incidences of adhesive bowel obstruction primarily, and early postoperative outcomes secondarily between the Guardix® group (n=26) and non-Guardix® group (n=31).

Results: The clinical and surgical characteristics of the 2 groups were similar (Table 1). The incidence of early PABO was significantly lower in the Guardix® group (0/26, 0%) than in the non-Guardix® group (5/31, 16.1%) (p=0.041). Two patients required abdominal surgery because of PABO, all of whom were in the non-Guardix® group. There were no significant differences in anastomotic leakage, intra-abdominal infection and wound infection (Table 2). Postoperative clinical courses were not different statistically in both groups (Table 2).

Conclusion: In this series, Guardix® helped to prevent bowel obstruction and had no

significant adverse effect on surgical outcomes in patients who underwent laparoscopic radical cystectomy. However, a prospective randomized study will be necessary to confirm this result.

UP097

Extraperitoneal Retrograde Radical Cystectomy and Consequent Peritoneal Cavity Reconstruction in Localized Male Bladder Cancer

Qin X^{1,2}, Zhang H^{1,2}, Wan F^{1,2}, Zhu Y^{1,2}, Dai B^{1,2}, Shi G^{1,2}, Zhu Y^{1,2}, Ye D^{1,2}

¹Fudan University Shanghai Cancer Center, Shanghai, China; ²Shanghai Medical College,

UP096, Table 1. Comparison of the Clinical and Surgical Characteristics between the Guardix® and Non-Guardix® Group

| | Guardix® (n=26) | non-Guardix® (n=31) | p-value |
|---------------------------------|-----------------|---------------------|---------|
| % of male | 88.5 | 83.9 | 0.873 |
| Age (years) | 64.7±8.8 | 66.3±9.6 | 0.765 |
| ASA score | 1.79±0.8 | 1.69±0.9 | 0.398 |
| BMI (kg/m ²) | 32.1±1.8 | 34.2±2.6 | 0.465 |
| Estimated blood loss (ml) | 580.8±476.6 | 497.4±323.7 | 0.203 |
| Operation time (min) | 436.1±349.5 | 442.2±390.8 | 0.409 |
| Transfusion rate (%) | 34.6 | 38.7 | 0.521 |
| Pathologic Stage (n) | | | |
| ≤ pT2 | 11 | 18 | 0.292 |
| ≥ pT3 | 15 | 13 | 0.292 |
| No. lymph nodes removed (range) | 14.8 (6-22) | 12.3 (2-33) | 0.138 |
| Type of urinary diversion (n) | | | |
| Ureterocutaneostomy | 1 | 2 | 1 |
| Ileal conduit | 20 | 22 | 0.765 |
| Studer pouch | 5 | 7 | 1 |

UP096, Table 2. Comparison of the Postoperative Clinical Outcomes between the Guardix® and Non-Guardix® Group

| | Guardix® (n=26) | non-Guardix® (n=31) | p-value |
|--|-----------------|---------------------|---------|
| Postoperative bowel obstruction, No. (%) | 4 (15.4) | 9 (29.0) | 0.224 |
| Adhesive bowel obstruction, No. (%) | 0 (0) | 5 (16.1) | 0.041* |
| Paralytic bowel obstruction, No. (%) | 4 (15.4) | 4 (12.9) | 0.562 |
| Anastomotic site problems (%) | 2 (7.7) | 3 (9.7) | 0.585 |
| Anastomosis site stricture, No. (%) | 1 (3.8) | 3 (9.7) | 0.376 |
| Anastomosis site leakage, No. (%) | 1 (3.8) | 0 (0) | 0.456 |
| Intraperitoneal infection (%) | 0 (0) | 0 (0) | 1 |
| Wound infection (%) | 1 (3.8) | 2 (6.5) | 0.567 |
| Time to NPO release±SD (days) | 6.9±11.4 | 5.8±6.9 | 0.317 |
| Time to ambulation±SD (days) | 1.5±0.8 | 1.3±0.7 | 0.452 |
| Duration of drainage±SD (days) | 12.9±5.2 | 15.1±7.9 | 0.213 |
| Hospital stay±SD (days) | 22.1±19.5 | 23.8±16.5 | 0.279 |

Fudan University, Shanghai, China

Introduction and Objectives: To introduce a standardized surgical procedure of extraperitoneal retrograde radical cystectomy and consequent peritoneal cavity reconstruction in localized male bladder cancer.

Materials and Methods: From April 2012 to April 2013, 84 consecutive male patients with localized bladder cancer (clinical stage T2 or lower) received the introduced procedure in our institute. The Key points of our procedure are: 1, extraperitoneal retrograde radical cystectomy; 2, best preservation of peritoneum except for the part attached to bladder dome (total peritoneum could be preserved in confirmed superficial disease), with respect to tumor control; 3, consequent peritoneal cavity reconstruction before urinary diversion, isolating the urinary diversion extraperitoneally. Median age was 65 years (35-83 years); preoperative characters, surgical parameters, perioperative complications, pathology and short-term prognosis were analyzed. Median follow-up was 9 months (3-15 months).

Results: The complete procedure including urinary diversion took 3.5 hours (2.2-5.0 hours), with a median peritoneal cavity exposure of 45 minutes (5-75 minutes); the median blood loss was 140ml (50-600ml), and 2 patients needed transfusion; Bilateral or unilateral neurovascular bundles were reserved in 76 cases; median pelvic drainage was 6.0 days (4-9 days), the median gastrointestinal recovery was 2.5 days (1-12 days), and the median postoperative hospital stay was 13.0 days (10-21 days); grade 2 Clavien-Dindo classification (CDC) of surgical complications were found in 11 cases, and CDC complications grade 3 or above were found in 4 cases; mild to moderate postoperative ileus happened in 2 cases, which recovered in 1 week and 2 weeks respectively, with supportive treatments; there were no perioperative deaths. No recurrence happened during follow-up.

Conclusion: The introduced procedure in localized male bladder cancer provided surgical facilities and limited abdominal organs disturbance with respect to tumor control; it effectively improved gastrointestinal recovery, reduced postoperative complications, and shortened hospital stay.

UR098

Options for Surgical Management of G3 Urothelial Bladder Cancer

Yakovlev P¹, Mrachkovskiy V¹, Kondratenko A¹, Sakalo A², Kuranov Y¹, Saliy P¹

¹Kiev Municipal Clinical Oncology Center, Kiev, Ukraine; ²SE Institute of Urology of AMS of Ukraine, Kiev, Ukraine

Introduction and Objectives: We review clinical presentation peculiarities of low differentiated urothelial bladder carcinoma and ensuing

options for surgical treatment of the disease.

Materials and Methods: From 2004 to 2013 we treated 355 patients with G3 urine bladder cancer. Male to female ratio was 6:1. Mean patient age was 63 years (range 48 to 83). A database was kept prospectively for all patients. All patients underwent complete clinical work-up with body CT scan TUR biopsy of the tumor. Number, size, localization of the lesion in the urine bladder (apex, side wall, bladder neck) and its invasiveness we assessed and used in planning surgery. Total of 331 (93.2%) patients were surgically treated, remaining 24 (6.8%) patients underwent biopsy for non-resectable tumor. Definitive surgical treatment included: radical cystectomy in 133 (40.2%) patients, partial cystectomy in 77 (23.3%) with or without lifelong cystostomy depending on final bladder capacity, TUR in 121 (36.6%) patients. Partial cystectomy was performed in patients with resectable lesions located away from the bladder neck.

Results: Final pathology of urine bladder tumor revealed stage pT1 tumor in 17 (4.8%), pT2 in 146 (41.2%), pT3 in 151 (42.5%), pT4 in 41 (11.5%) patients. Average tumor size was 4cm (range 2 to 8cm). In all cases lesion was a solitary endophytic solid tumor with/without exophytic papillary component with clear margins. In 95.2% it was muscle-invasive tumor. Nevertheless, in 198 (59.8%) patients it was feasible to perform organ-preserving surgery (partial cystectomy or TUR). No perioperative mortality occurred.

Conclusions: Low-differentiated urothelial tumor in urine bladder presents as solid solitary intramural lesion with clear margins. In 95.2% cases tumor presents as muscle-invasive process. When small in size and located away from the bladder neck, organ preserving surgery is feasible. In our series TUR and partial cystectomy was done in 59.8% of patients. Radical cystectomy was done on 40.2% patients with G3 bladder cancer. More study is required to assess the effect of organ preserving surgery on survival and quality of life of patients.

UR099

Laparoscopic Radical Cystectomy versus Open Cystectomy: A Prospective Study of Post-Operative Complications following Dindo Clavien Classification (A North African Country Single Centre Experience)

Lakmichi M, Moudouni S, Dahami Z, Sarf I
Dept. of Urology, University Hospital Mohamed the VIth, Marrakech, Morocco

Introduction and Objectives: To prospectively study and compare postoperative complications in patients who had laparoscopic radical cystectomy and those who had open radical cystectomy for bladder tumors.

Materials and Methods: Between January 2007 and January 2013, 80 patients had

performed radical cystectomy for bladder cancer. The mean age was 58.5 year-old [33, 75]. Sex ratio (M/F) was 5.6. Most cases were muscle invasive urothelial carcinoma (93.7%). More than 80% of our patients were ASA 1 (American society of anesthesiology classification). Group 1: 40 patients had laparoscopic radical cystectomy, when Group 2: 40 patients had open radical cystectomy. For every patient all postoperative complications were noted following Clavien Dindo classification. All female patients included in our study laparoscopic anterior pelvicotomy.

Results: Radical cystoprostatectomy was performed in both groups, when 6 female patients had laparoscopic anterior pelvicotomy. Standard lymphadenectomy was performed in 74 patients (92.5%): ilio-obturator, internal and external iliac lymphadenectomy. Eighteen patients had orthotopic bladder replacement (4 in Group 1 / 14 in Group 2), when most patients had external transileal urine derivation. The mean operating time was 300 min and 255 min for Group 1 and Group 2 successively. Blood loss was estimated at 200 cc and 450 cc for Group 1 and Group 2 successively. Positive surgical margins were the same in both groups (2 patients in every Group). Postoperative complications were classified for the laparoscopic surgery group as follows: Grade 0 in 27 patients (67.5%) versus 22 patients (55%) in the open surgery Group, Grade I early complications in 3 patients (7.5%) versus 2 patients (5%) in the open surgery Group. However, no late Grade II complication was noted in both groups. Grade IIIb early complications in 3 patients (7.5%). Grade IIIb early complications were noted in 3 patients (7.5%) versus 2 patients (5%) in Group I and II successively. No grade IIIb late complication was noted for both groups. Grade V early complications were noted in 2 patients (5%) in both groups. Finally, Grade V late complications were reported in 2 patients (2%) in the open surgery Group.

Conclusion: Following our prospective study there were no huge differences between the open and the standard laparoscopic radical cystectomy for bladder tumor in term of complications. However, it was a single centre experience study with a non randomized small sample of patients. Though, we appreciated all the advantages of laparoscopy technique in term of minimizing blood loss, rapid recovery and social reinsertion for our patients compared with the open technique group of patients.

UR100

Primary Signet-Ring Cell Carcinoma of the Urinary Bladder: About 3 Cases

Fourati M, Chaabouni A, Hadj Slimen M, Rebai N, Touaiti T, Smaoui W, Bouacida M, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: Primary signet-ring cell carcinoma of the urinary bladder is a rare variant of mucus-producing adenocarcinoma constituting approximately 0.5% to 2.0% of all primary carcinomas of the bladder. This type of tumor presents some histological similarities with tumors of other organs, including the best known which is the gastric plastic linitis. The aim of our study is to determine the clinical, para-clinical and histological features, treatment and prognosis of this rare histological variety.

Methods and Materials: Our study was a descriptive and retrospective analysis of 3 cases of signet-ring cell carcinoma of the bladder, collected in the Urology Department and Pathology Department during a period of 14 years (1999-2013).

Results: The mean age at diagnosis was 54.3 years with a male predominance. The diagnosis of signet-ring cell carcinoma was facilitated by imaging and cystoscopy. Histological examination supplemented by standard immunohistochemical study confirmed the diagnosis. Thoraco-abdominal-pelvic CT scan had evaluated the tumor extension to the bladder, lymph node chains and metastases. Two patients had undergone a radical cysto-prostatectomy. The third patient had pulmonary metastases and then was treated by palliative care. The mean survival rate was of 5 months, with extremes ranging from 2 to 11 months.

Conclusion: Primary signet-ring cell carcinoma of the bladder is considered as a highly malignant tumor with poor prognosis due to its highly invasive nature and high metastatic potential.

UP.101

Muscle Bladder Infiltrating Tumor in Octogenarian: About 22 Cases

Hadj Slimen M, Touaiti T, Bouassida M, Smaoui W, Fourati M, Mseddi M, Rbai N, Mhiri M

CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: The aim of the study is to determine the profile of patients and therapeutic possibilities which can be proposed for them.

Materials and Methods: In 30 years, a total of 52 octogenarian patients were treated for bladder tumors. Twenty two of them had muscle bladder infiltrating tumor.

Results: The average age was 84.2 year and male to female ratio of 1.2. Cardiovascular co-morbidity risk factors were present in 100%. Fortuitous discover was in 31.8%, haematuria was present in 100%. Anatomopathology and imaging tests revealed the muscle bladder infiltrating tumor. Our patients were classified using the American Society of Anesthesiologists score in ASA I – II: 7 patients (31.81%), and ASA III-IV: 15 patients (68.18%). In terms of anatomopathology, we were able

to distinguish 5 histological types: ureteral carcinoma (54.54%), epidermoid carcinoma (7.27%), adenocarcinoma (9%), sarcomatoid carcinoma (4.5%), micropapillary carcinoma (4.5%). Therapeutic abstention concerned 10 patients because of severe co-morbidity. Total cystectomy was performed in 4 patients. Eight patients underwent radiation therapy. Early postoperative evolution was satisfying in all cases, no postoperative mortality occurred. In late postoperative evolution, nocturnal urinary leakage and erectile impotence were reported. Metastasis were diagnosed in one operated patient and 9 how underwent radiation therapy. **Conclusion:** Chronological age should not be a medical contraindication to the surgical treatment of the muscle bladder infiltrating tumor but rather the physiological age, considering the co-morbidity factors, and assessment of extension which influences the prognosis of the bladder infiltrating tumor in 80 years and over patients.

UP.102

The Role of Preoperative Transurethral Biopsy of the Prostatic Urethra for Evaluation of the Urethral Margin at Radical Cystoprostatectomy

von Rundstedt F¹, Shen S², Godoy G¹, Lerner S¹

¹Baylor College of Medicine, Houston, USA;

²Houston Methodist Hospital, Houston, USA

Introduction and Objectives: We have used the prostatic urethra biopsy as part of our preoperative management and clinical staging prior to radical cystoprostatectomy (RC). Our hypothesis is that a negative preoperative transurethral resection (TUR) biopsy of the prostatic urethra accurately predicts a final negative apical urethral margin, safely replacing an intraoperative frozen section for urethral preservation and orthotopic neobladder utilization.

Materials and Methods: TUR biopsies of the prostatic urethra adjacent to the verumontanum at 5 and 7 o'clock were performed on 272 male patients that underwent RC at our institution between 1987 and 2013. Pathology results of

biopsy were correlated with those of final apical urethral margin status of the RC specimen, and whether or not the surgeon had done an intraoperative frozen section of the urethral margin and performed a primary or secondary urethrectomy. Whole mount step section of the entire prostate was performed and examined microscopically in the majority of cases.

Results: Of the 272 patients, 200 (74%) had a negative and 72 (26%) had a positive biopsy. The overall final positive apical urethral margin rate in the RC specimen in this series was 2.2% (6/272). Five of those patients underwent a primary or secondary urethrectomy. In one patient with a positive final margin, a urethrectomy was not performed as the frozen section of apical urethra had been negative despite the finding of an invasive urothelial carcinoma on the preoperative TUR biopsy. The negative predictive value of a TUR biopsy was very high (99.5%) with a very low positive predictive value (PPV) for the final pathological margin status.

Conclusion: The apical urethral positive margin rate is very low in patients undergoing RC. A positive TUR biopsy has a low PPV for a positive final apical margin (7%). A negative preoperative TUR biopsy of the prostatic urethra can reliably predict a negative final margin and may obviate the need for intraoperative frozen section evaluation. This information facilitates preoperative counseling patients about the feasibility for orthotopic neobladder reconstruction of the bladder after RC.

UP.103

Is Cystectomy Feasible in Elderly Patients?

Jensen T¹, Holt P¹, Olsen K¹, Mathiasen H¹, Lund L^{1,2}

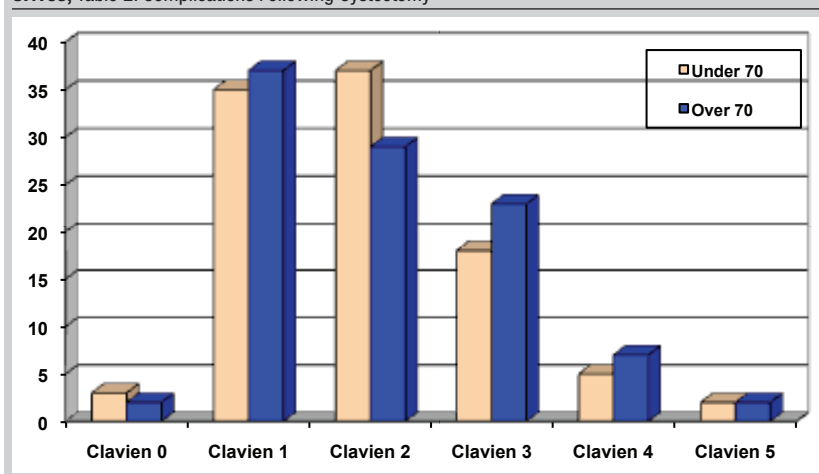
¹Dept. of Urology, Odense University Hospital, Odense, Denmark; ²Clinical Institute, University of Southern Denmark, Odense, Denmark

Introduction and Objectives: The number of new cancer patients will increase by 23% from 2010 to 2030 in the elderly population. It is therefore important to find out who is "fit or frail" in patients older than 70 years undergoing cystectomy.

UP.103, Table 1.

| | Under 70 Years | Over 70 Years | P value |
|--|------------------|------------------|---------|
| Number of patients | 85 | 44 | |
| Age | 61 (42-69 Years) | 73 (70-84 Years) | n.s. |
| BMI | 26 (19-34) | 25 (19-37) | n.s. |
| Hospital stay | 12 (4-68) | 13 (4-38) | n.s. |
| Clavien | 3,35,37,18,5,2 | 2,37,29,23,7,2 | |
| Open surgery | 59 (69%) | 28 (64%) | |
| Robotic assisted surgery, with open urinary diversion | 16 (19%) | 10 (22%) | |
| Robotic assisted surgery | 10 (12%) | 6 (14%) | |

UP.103, Table 2. Complications Following Cystectomy



Materials and methods: A retrospective study of all patients who were diagnosed with bladder cancer and underwent cystectomy in the period from April 2011 to September 2013 (30 months). A total of 129 patients underwent cystectomy. Forty-four patients (31 males, 13 women) were older than 70 years and 85 patients, younger (72 males, 13 women).

Results: The mean age in patients over 70 years of age were 73 years (range, 42-69), in patients younger mean age 61 years (range, 42-69). Complication rate were evaluated according to Clavien grade, and no difference were seen between the two groups (see Table 2). No differences in outcome after operating technique (robotic and open surgery) were seen in the two groups. Three patients died within the 30 days following surgery (one in the age group 70+).

Conclusion: Our retrospective analysis suggests that cystectomy can be offered to the selected patients older than 70 years with no differences in morbidity or mortality.

UP.104

Analysis of Radiation Therapy in Patients with Metastatic Bladder Cancer

Okada M, Nishiyama N, Shindou T, Kitamura H, Masumori N
Sapporo Medical University School of Medicine, Sapporo, Japan

Introduction and Objectives: Radiation therapy (RT) for local recurrence or distant metastasis of bladder cancer (BC) is usually given with palliative intent to relieve symptoms and reduce suffering. However, some patients who undergo RT for these purposes obtain long-term survival. We evaluated the survival benefits of RT for local recurrence and metastasis in BC patients.

Materials and Methods: Data were collected on 32 consecutive patients with metastatic BC treated by RT between 2001 and 2012 at a single institute. Local recurrence and metastasis during follow-up were detected after

radical cystectomy. Eight (25%) of the patients underwent definitive RT (DRT), defined as RT targeting all known disease sites without palliative intent. Twenty-four (75%) patients received palliative RT (PRT). Overall survival (OS) was determined by the Kaplan-Meier method with comparison by logistic regression analysis. In patients receiving opioids for pain relief, the doses of opioids were evaluated before and after RT.

Results: All patients completed RT without severe adverse events. The median follow-up was 11.2 months (range, 1.0-39.3 months). Twenty-four (75%) patients underwent concurrent cisplatin-based chemotherapy. DRT and PRT without chemotherapy were given to 4 and 5 patients, respectively. Of the 8 patients receiving DRT, 4 (50%) had local recurrence in the pelvis or lymph node metastasis, 3 (37.5%) had lung metastasis, and 3 (37.5%) had bone metastasis. Of the 24 patients receiving PRT, 12 (50%) had local recurrence in the pelvis or lymph node metastasis, 6 (25%) had lung metastasis, 17 (70.8%) had bone metastasis. The OS rates at one year were 53.1% for all patients, 75.0% for DRT, and 45.8% for PRT. The median OS rates were 20.0 and 10.8 months for patients who received DRT and PRT, respectively (hazard ratio: 4.505, $p=0.034$, log-rank test). Of the 16 patients receiving opioids for pain relief, dose reduction was achieved in 7 (44%). Fourteen patients (88%) did not need more opioids after PRT.

Conclusion: RT can be safely performed for local recurrence or metastasis of BC and can improve OS in some patients.

UP.106

The Combination of Gemcitabine and Cisplatin Chemotherapy with Short Hydration for Patients with Urological Malignancy in Outpatient Center

Azuma T¹, Matayoshi Y², Nagase Y², Oshi M², Homma Y¹

¹Dept. of Urology, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan; ²Dept. of Urology, Tokyo Metropolitan Tama Medical Center, Tokyo, Japan

Introduction and Objectives: Chemotherapy is a mainstream treatment for locally advanced or metastatic urothelial cancer. Because of nephrotoxicity due to cisplatin, hydration for at least 24 hours can decrease quality of life (QOL) for patients, and increase medical cost. We evaluated the safety of gemcitabine and cisplatin (GC) chemotherapy with short hydration in outpatient center and quality of life for patients.

Materials and Methods: Between 2010 and 2012, 17 patients at the Tokyo Metropolitan Tama Medical Center had GC chemotherapy with short hydration. Patients received a gemcitabine 800-1000 mg/m² on day 1, 8 and 15 plus cisplatin 56-70 mg/m² on day 2. Cisplatin was administered with 2L hydration. For monitoring of renal function, serum creatinine (Cr) level was checked before and during GC chemotherapy. For evaluation of QOL, Functional Assessment of Cancer Therapy (FACT-G) questionnaire was used.

Results: Mean patient age was 70.6 years (range 64 to 84) and all are male. Five patients had nephrectomy, and 5 patients had single kidney because of hydronephrosis due to malignancy. The patients with serum creatinine value more than 1mg/dl were 9 cases. GC chemotherapy with short hydration was performed safely in outpatient center without increase of serum Cr level. FACT-G score improved compared with that of hospitalization.

Conclusion: GC chemotherapy with short hydration was useful for patients with urological malignancy.

UP.107

Clinical Outcomes following Treatment of Organ-Confined Small Cell Carcinoma of the Bladder: A Singapore General Hospital Experience

Teo J¹, Chow M¹, Chua W¹, Sim H², Ng L¹, Lee L¹

¹Singapore General Hospital, Singapore;

²Ravenna Urology Clinic, Gleneagles Medical Centre, Singapore

Introduction and Objectives: Small cell carcinoma of the bladder (SCCB) is a rare and aggressive cancer with a high potential of metastasis. This study aims to analyse the oncological outcomes following treatment of this condition in a single institution.

Materials and Methods: All patients with histologically diagnosed organ-confined SCCB between January 1990 and June 2013 were identified from a prospectively maintained cancer database. We dichotomised the patients into 2 groups: those with pure small cell histology and those with mixed histology (small cell

carcinoma with transitional cell carcinoma). The clinical variables analysed include: patient demographics, histology, treatment and survival outcomes.

Results: We identified 13 patients, with a mean age of 60 years (range 50 to 85). All patients presented with haematuria. In this cohort, 9 had a known smoking history. Five patients had pure small cell carcinoma histology while 8 patients had a mixed histology. One hundred percent of patients in the pure group presented with clinical T2 disease, whereas 75% of patients from the mixed group presented with clinical T2 disease and 25% presented with clinical T3 to T4 disease. In the pure SCCB group, 1 underwent surgery, 2 underwent chemotherapy with radiotherapy, 1 underwent chemotherapy and 1 did not undergo treatment. In the mixed SCCB group, 4 underwent surgery, 2 underwent chemotherapy with radiotherapy, 1 underwent chemotherapy and 1 did not undergo treatment. The mean overall survival (OS) was 13 months for the whole cohort, 10 months for the pure SCCB group and 97 months for the mixed SCCB group. There were 3 survivors from the mixed SCCB group at the conclusion of the study.

Conclusion: SCCB is an aggressive disease with poor prognosis. Patients with mixed SCCB have evidently better OS than pure SCCB. Best treatment option is unclear as good outcomes are seen in patients who undergo different treatment, and the rarity of this disease does not allow for meaningful conclusions. Further multi-centre studies are required to determine the optimal treatment modality of SCCB due to its rarity.

UP.109

The Value of Good Quality First Look Transurethral Resection of Bladder Tumour (TURBT) in the Treatment of the Newly Diagnosed Bladder Tumour

Elabbady A, Kotb A, Sharafeldien M, Atta M
Alexandria University, Alexandria, Egypt

Introduction and Objectives: Despite, the fact that there is a clear consensus on the aims of TURBT, there is little agreement on how to perform TURBT to achieve that goal. The aim of our work was to analyze the impact of a good quality first look transurethral resection of bladder tumour (TURBT) protocol on the identification of muscle invasive disease on initial biopsy and on the cystoscopic findings on second look cystoscopy.

Materials and Methods: We prospectively included 50 consecutive patients, who underwent TURBT sessions for newly diagnosed bladder cancer. All the TURBTs were extended by resecting deeply to the extravesical fat and extending transversely removing extra few millimeters from the tumour edges. Urethral catheter was left routinely for 5 days postoperatively.

All patients with non-muscle invasive disease underwent 2nd look cystoscopy for either resection of any residual tumour or biopsy from the site of previous resection.

Results: No single complication was encountered following our resection technique. We could identify 10 patients (20%) following initial resection as having muscle invasive bladder cancer. Of the remaining 40 patients, 3 patients had low grade Ta disease, and so second biopsies were aborted for them. The remaining 37 patients had T1, G2-3 disease and none of them had evident residual disease at the site of tumour resection, as proven clinically and pathologically by taking a cold-cup biopsy from tumour bed.

Conclusion: Good quality first look TURBT provides detailed information about the horizontal and vertical extent of the bladder tumour. The implementation of this protocol of an extended TURBT is greatly needed to improve local tumour control and avoid the need for a second look cystoscopy as a routine technique.

UP.110

Secondary TUR in High Risk, Non-Muscle-Invasive, Bladder Tumors: Does Experience Change the Results?

Botoca M¹, Cumpănas A¹, Dema A², Minciu R¹, Bărdan R¹, Serbescu C¹, Bucuras V¹

¹Dept. of Urology, Victor Babes University of Medicine and Pharmacy, Timisoara, Romania;

²Dept. of Pathology, Victor Babes University of Medicine and Pharmacy, Timisoara, Romania

Introduction and Objectives: The secondary TUR is recommended due to the significant risks of either residual tumor after the first TUR-B or under-staging at the initial resection. The aim of our study was to compare the differences between three periods over a 7 years interval, when the same urologists and the same pathologist were involved in the TUR-B and re-staging TUR-B procedures and to evaluate the impact of experience in the final outcome.

Materials and Methods: A total of 205 cases of high-risk non-muscle invasive bladder tumors which underwent initial TUR B, followed by a secondary TUR B 3-4 weeks later performed by the same operator, were divided in three groups, according to the years of surgery, and were retrospectively analyzed and compared in terms of pathological results.

Results: There were no significant differences between the 3 groups (23 patients, 89 patients, and 93 patients, respectively) in terms of under-staging rate (10-15%), tumor-free status after the initial resection (58-62%) and the lack of concordance between the primary and secondary TUR (20-23%).

Conclusion: Although the experience of the surgeons and the pathologist increased, the risk of understaging, the lack of concordance between the initial and secondary TUR-B and of

the incomplete resection remained unchanged, revealing the mandatory role of re-staging TUR-B for all cases of high risk non-muscle invasive bladder tumors.

UP.111

Construction of Predictive Models for Cancer-Specific Survival of Patients with Non-Muscle Invasive Bladder Cancer Treated with Bacillus Calmette-Guérin: Results from a Multicenter Retrospective Study

Nishiyama N¹, Kitamura H¹, Hotta H², Takahashi A³, Yanase M⁴, Itoh N⁵, Tachiki H⁶, Miyao N⁷, Matsukawa M⁸, Masumori N¹, Kunishima Y⁹, Taguchi K¹⁰

¹Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan; ²Dept.

of Urology, Asahikawa Red Cross Hospital, Asahikawa, Japan; ³Dept. of Urology, Hakodate Goryokaku Hospital, Hakodate, Japan; ⁴Dept.

of Urology, Sunagawa City Medical Center, Sunagawa, Japan; ⁵Dept. of Urology, NTT East Japan Sapporo Hospital, Sapporo, Japan; ⁶Dept.

of Urology, Steel Memorial Muroran Hospital, Muroran, Japan; ⁷Dept. of Urology, Muroran City General Hospital, Muroran, Japan; ⁸Dept.

of Urology, Takikawa Municipal Hospital, Takikawa, Japan; ⁹Dept. of Urology, Hokkaido Social Work Association Obihiro Hospital, Obihiro, Japan; ¹⁰Dept. of Urology, Oji General Hospital, Tomakomai, Japan

¹Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan; ²Dept.

of Urology, Asahikawa Red Cross Hospital, Asahikawa, Japan; ³Dept. of Urology, Hakodate Goryokaku Hospital, Hakodate, Japan; ⁴Dept.

of Urology, Sunagawa City Medical Center, Sunagawa, Japan; ⁵Dept. of Urology, NTT East Japan Sapporo Hospital, Sapporo, Japan; ⁶Dept.

of Urology, Steel Memorial Muroran Hospital, Muroran, Japan; ⁷Dept. of Urology, Muroran City General Hospital, Muroran, Japan; ⁸Dept.

of Urology, Takikawa Municipal Hospital, Takikawa, Japan; ⁹Dept. of Urology, Hokkaido Social Work Association Obihiro Hospital, Obihiro, Japan; ¹⁰Dept. of Urology, Oji General Hospital, Tomakomai, Japan

¹Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan; ²Dept.

of Urology, Asahikawa Red Cross Hospital, Asahikawa, Japan; ³Dept. of Urology, Hakodate Goryokaku Hospital, Hakodate, Japan; ⁴Dept.

of Urology, Sunagawa City Medical Center, Sunagawa, Japan; ⁵Dept. of Urology, NTT East Japan Sapporo Hospital, Sapporo, Japan; ⁶Dept.

of Urology, Steel Memorial Muroran Hospital, Muroran, Japan; ⁷Dept. of Urology, Muroran City General Hospital, Muroran, Japan; ⁸Dept.

of Urology, Takikawa Municipal Hospital, Takikawa, Japan; ⁹Dept. of Urology, Hokkaido Social Work Association Obihiro Hospital, Obihiro, Japan; ¹⁰Dept. of Urology, Oji General Hospital, Tomakomai, Japan

¹Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan; ²Dept.

of Urology, Asahikawa Red Cross Hospital, Asahikawa, Japan; ³Dept. of Urology, Hakodate Goryokaku Hospital, Hakodate, Japan; ⁴Dept.

of Urology, Sunagawa City Medical Center, Sunagawa, Japan; ⁵Dept. of Urology, NTT East Japan Sapporo Hospital, Sapporo, Japan; ⁶Dept.

of Urology, Steel Memorial Muroran Hospital, Muroran, Japan; ⁷Dept. of Urology, Muroran City General Hospital, Muroran, Japan; ⁸Dept.

of Urology, Takikawa Municipal Hospital, Takikawa, Japan; ⁹Dept. of Urology, Hokkaido Social Work Association Obihiro Hospital, Obihiro, Japan; ¹⁰Dept. of Urology, Oji General Hospital, Tomakomai, Japan

¹Dept. of Urology, Sapporo Medical University School of Medicine, Sapporo, Japan; ²Dept.

of Urology, Asahikawa Red Cross Hospital, Asahikawa, Japan; ³Dept. of Urology, Hakodate Goryokaku Hospital, Hakodate, Japan; ⁴Dept.

of Urology, Sunagawa City Medical Center, Sunagawa, Japan; ⁵Dept. of Urology, NTT East Japan Sapporo Hospital, Sapporo, Japan; ⁶Dept.

of Urology, Steel Memorial Muroran Hospital, Muroran, Japan; ⁷Dept. of Urology, Muroran City General Hospital, Muroran, Japan; ⁸Dept.

bladder preservation, the independent prognostic factors for CSS were age (>70 [$p=0.002$]), tumor size ($>3\text{cm}$ [$p=0.015$]) and the Nieder classification (BCG-refractory [$p<0.001$]). The CSS rates at 10 years were 51.9% and 83.7% for the BCG-refractory patients and other BCG failure groups, respectively ($p=0.013$). In subgroup analysis, the estimated 10-year CSS rates in the groups with no positive, one positive, and two to three positive factors were 88.9%, 73.7% and 37.8%, respectively ($p<0.001$).

Conclusion: Patients with stage progression at the first recurrence after BCG therapy had poor prognoses. Three prognostic factors for predicting survival were identified (age, tumor size, and the Nieder classification) and used to categorize patients with NMIBC treated with BCG into three risk groups based on the number of prognostic factors in each one. These risk groups can be used in clinical trial design and interpretation, and in patient management.

UP.112

Circulating Tumor Cells in Bladder Cancer: Optimization of Detection and Investigation of Their Diagnostic and Prognostic Roles

Ali-El-Dein B, Laymon M, Zakaria M, Abdel-Raouf R, El-Naggar H, El-Tabey N, El-Hefnawy A, Barakat T, El-Halwagy S, Abdel-Rahim M, Abdel-Hamid M, Lotfy Z, Ibrahim E, Shaaban A
Urology and Nephrology Centre, Mansoura, Egypt

Introduction and Objectives: To optimize detection of circulating tumor cells (CTC) in bladder cancer (BC) using 6 molecular markers and real time PCR technology and to assess their diagnostic and prognostic value in a preliminary report.

Materials and Methods: This is a quasi experimental study that was approved by the local REC committee, performed between April 2012 and September 2013 and included 118 individuals. Of these, 24 volunteers served as controls, 8 patients underwent TURBT for NMIBC and 86 patients (76 males; 10 females) underwent radical cystectomy (RC) for BC. The latter included 61 cases with transitional cell carcinoma (TCC), 24 with SCC and 1 with adenocarcinoma. Blood samples were obtained from BC patients before RC, during TURBT in NMIBC and from the controls. Six molecular markers (CK-19, CK-20, Survivin, Uroplakin-II, Mucin7 (MUC-7) gene and EGFR) were used. Expression of these markers was evaluated by quantitative real-time PCR (qRT-PCR) on RNA isolated from peripheral blood samples. The results of the 6 molecular markers (CTC) were correlated to the histological type, grade, T stage, N stage and disease free survival (DFS).

Results: Detection of CTC, by expression of one or more genes, was positive in 36 of 86 (39.5%) BC patients undergoing cystectomy

and 2 of 8 patients with NMIBC during TURBT. The detection rate of CTC was higher in higher T stages where it was positive in 6, 6, 12, 6 and 6 out of 19 T1, 21 T2, 28 T3a, 9 T3b and 9 T4 tumor, respectively ($p = 0.03$). No correlation was found between positive CTC and grade, lymph node status or histological type of BC. DFS was better for CTC negative cases, where local recurrence and/or distant metastasis developed in 6/50 (12%) and 9/36 (25%) in negative and positive cases, respectively (log rank $p = 0.02$) over a mean follow-up of 6 months (range 3-12).

Conclusions: The high detection rate of CTC in this cohort is due to the use of multiple markers. A good correlation was noted between the detection of CTC and T stage. The presence of CTC has a negative impact on DFS in patients undergoing cystectomy for BC.

UP.113

Treatment Efficacy and Tolerability of Intravesical Bacillus Calmette-Guérin (BCG): Six-Weekly Induction Course and Once Every Two Months for One Year Maintenance Protocol in High Risk Non-Muscle Invasive Bladder Cancer (NMIBC)

Yamada D, Muneishi R, Nakatsuka H, Uematsu K
Dept. of Urology, Mitoyo General Hospital, Kanonji City, Japan

Introduction and Objectives: The generally used maintenance BCG (mtceBCG) protocol, however, which involves 3 weekly treatments at 3 months, 6 months, and every 6 months thereafter for 3 years, has major side-effects, and the rate of protocol completion is low. In this department, mtceBCG is being implemented involving one dose every two months for a year (a total of six doses). This results in relatively few side-effects and is an effective method, hence this report.

Materials and Methods: Since 2007 this hospital has been targeting non-muscle invasive bladder cancer (NMIBC) patients undergoing TURBT, and who are considered to be at high risk for recurrence. After a course of 6 weekly instillations with BCG, mtceBCG protocol (once every two months, six times in total) is implemented. To date, 21 cases have been treated, and six are currently being treated. Of these, 25 were men and two were women; their ages ranged from 41 to 84. Regarding the pathology of bladder cancer, 14 patients were high grade, while 13 of them had CIS lesions.

Results: The scheduled six doses of mtceBCG were administered in 19 out of 21 cases. The two cases not completing the course did so because in one case side effects developed, while in the other the bladder cancer recurred. Bladder cancer recurrence was noted in four patients after completion of mtceBCG, and one patient underwent complete bladder

extirpation surgery, but the bladder was preserved in the remaining three. In the four cases in which bladder cancer recurrence was noted after completion of mtceBCG, the recurrence happened four years and ten months, one year and ten months, nine months and seven months, respectively, after the completion of BCG therapy.

Conclusion: mtceBCG, administered once every two months, had few side effects, and was effective in preventing recurrence. It is believed, however, that consideration should be given to extending the period during which mtceBCG is administered.

UP.114

Can Intra-Vesical Mitomycin-C Hyperthermia Challenge Radical Cystectomy as Standard of Care in the Management of High-Risk Non-Muscle Invasive Bladder Cancer?

Nair R, Pai A, Ayres B, Bailey M, Perry M, Issa R
St. George's Hospital, London, UK

Introduction and Objectives: There has been a paradigm shift towards consideration of alternative intra-vesical chemotherapeutic agents in the management of primary or Bacillus Calmette-Guérin (BCG) failure high-risk non-muscle invasive bladder cancer (HR-NMIBC). Intra-vesical Mitomycin-C hyperthermia (MMC-HT) has been shown to be a viable option in such circumstances. Although the morbidity and medium-term outcomes of MMC-HT are well documented, there is still need for evaluation of long-term disease specific outcomes matched against the current standard of care for HR-NMIBC; radical cystectomy (RC).

Materials and Methods: A prospective single-centre review of 103 patients receiving MMC-HT was performed between June 2006 and January 2014 and matched against 51 cases undergoing RC for HR-NMIBC. Co-morbidities were quantified using the Charlson co-morbidity Index (CCI), and peri- and post-procedure complications were recorded. Post operative pathology, recurrence and progression rates together with five-year overall and disease specific survival were evaluated.

Results: The mean age of patients receiving MMC-HT was 72 (age range 51-91) compared to 68 (age range 54-84) undergoing RC. Thirty percent of patients underwent primary-RC for HR-NMIBC versus 70 percent for BCG failure. This compared to 11 percent receiving primary MMC-HT versus 89 percent for BCG failure. The mean CCI score for patients receiving MMC-HT was significantly higher than RC group (6.4 vs. 4.1). Significant complication rates classified as a Clavien-Dindo score of greater than 2, was significantly higher in the RC cohort (21 percent) compared to patients

receiving MMC-HT (0 percent). There were no deaths associated with MMC-HT treatment compared to a ninety-day mortality of four percent in those receiving RC. Median follow-up was 40 months (4 to 92 months) for both cohorts. Disease specific survival at five years was observed at 85.2 and 74.6 percent in the MMC-HT and the RC cohorts respectively, whilst overall survival figures were 61.9 versus 68.4 percent.

Conclusion: MMC-HT is both feasible and safe if offered to well-selected patients. It provides durable long-term outcomes compared to RC for HR-NMIBC. We demonstrate that despite similar baseline characteristics in these groups, there is a clear advantage in complication rates favouring MMC-HT over RC without a significant difference in disease specific or overall survival.

UP115

Is Intravesical Bacillus Calmette-Guérin Superior to Chemotherapy for Intermediate-Risk Non-Muscle-Invasive Bladder Cancer? It's Still an Ongoing Debate

Song S, Han K, Jeong I, Hong B, Park H
Asan Medical Center, Seoul, South Korea

Introduction and Objectives: To evaluate the risk of recurrence in patients with intermediate-risk-NMIBC after intravesical instillation with chemotherapeutic agents or BCG.

Materials and Methods: In total, 3,023 consecutive patients underwent transurethral resection (TUR) between 2002 and 2012 in a tertiary-care hospital. The 746 patients with intermediate-risk NMIBC, as defined by 2013 European Association of Urology guidelines, formed the study group. The primary outcome was time to first recurrence. The recurrence rates of the TUR alone, chemotherapy after TUR, and BCG following TUR groups were determined by Kaplan-Meier analysis. Risk factors for recurrence were identified by Cox-regression analysis. The inverse-probability-treatment-weighting model (IPTW) was used to compare the TUR+chemotherapy and TUR+BCG groups in terms of recurrence risk. **Results:** Of the 746 patients, 507 (68.1%) underwent TUR alone, and 160 (21.4%) and 78 (10.5%) underwent TUR+BCG and TUR+chemotherapy, respectively. During a median follow-up period of 51.7 months (interquartile range, 33.1–77.8 months), 286 patients (38.5%) experienced tumor recurrence. The 5-year recurrence rates of the TUR-alone, TUR+chemotherapy, and TUR+BCG groups were 53.6±2.7%, 30.8±5.7%, and 33.6±4.7%, respectively ($p<0.001$). Chemotherapy (Hazard ratio [HR]=0.56, 95% confidence intervals [CI]=0.36–0.89) and BCG treatment (HR=0.44, 95%CI=0.31–0.62) were independent risk factors of recurrence. IPTW analysis showed that TUR+BCG did not differ

from TUR+chemotherapy in recurrence risk (HR=0.88, 95%CI=0.49–1.58).

Conclusions: The recurrence risks after chemotherapy and BCG in intermediate-risk NMIBC are comparable.

UP116

Is Intermediate-Risk Non-Muscle Invasive Urothelial Carcinoma of the Bladder Indeed a Homogeneous Entity?

Song S, Han K, Jeong I, Hong B, Park H
Asan Medical Center, Seoul, South Korea

Introduction and Objectives: Risk stratification is imperative for determining the optimal management strategy for non-muscle-invasive bladder cancer (NMIBC). However, the intermediate-risk group includes a wide variety of patients. The homogeneity of patients with intermediate-risk NMIBC in terms of risk intensity was assessed in this study.

Materials and Methods: All consecutive patients with intermediate-risk NMIBC (defined by 2013 European Association of Urology Guidelines) who underwent transurethral resection in a single center in 2002–2012 were enrolled. The pre-surgery risk intensity of each patient was estimated by using the European Organization for Research and Treatment of Cancer (EORTC) recurrence score. The patients were divided into the low (EORTC 1–4 points) or high (4–9 points) recurrence score groups. The primary outcome was the time to first recurrence, which was estimated *via* the Kaplan-Meier method. Independent tumor recurrence predictors were determined *via* Cox-regression models.

Results: Of the 746 intermediate-risk patients (62.2±11.9 years, 608 males), 625 (83.8%) and 121 (16.2%) had low and high EORTC-scores, respectively, and 239 (31.9%) underwent instillation with Bacillus Calmette-Guérin ($n=160$, 21.4%) or chemotherapy ($n=78$, 10.5%). During follow-up (median, 51.7 months; interquartile range, 33.1–77.8 months), 286 patients (38.5%) experienced tumor recurrence. Five-year recurrence rates of the low and high EORTC-score groups were 41.1±2.4% and 76.1±4.7%, respectively ($P<0.001$). In the adjuvant-treated patients, 5-year recurrence rates for the low and high EORTC-score groups were equivalent 24.1±3.7% and 66.9±8.4%, respectively ($P<0.001$). High baseline EORTC-score was an independent predictor of tumor recurrence.

Conclusions: The intermediate-risk group seems inhomogeneous. Further risk stratification in this group is required.

UP117

Ideal Time to Re-Resection in High Grade Superficial Bladder Cancer: Does It Matter?

Dixon S, Fung D, El Hassan R, Menezes P
Sunderland Royal Hospital, Sunderland, UK

Introduction and Objectives: We review the time taken for re-resection of high grade superficial bladder cancers and outcomes in a high volume tertiary urology centre.

Materials and Methods: In our centre, between 240 and 300 new bladder cancers are diagnosed each year. We reviewed the high grade superficial bladder cancers (G3/high G2, pTa/pT1) between the 1st January 2012 and 31st December 2012 in whom re-resection was recommended. The histopathology department identified the new high grade superficial bladder cancers diagnosed during this period. Their case notes and electronic records were examined retrospectively, details collected were the time taken between the first and second resection, surgeon responsible, detrusor muscle included in sample and the histology outcome (i.e. down staged or upstaged).

Results: Fifty eight patients underwent re-resection for high grade superficial bladder cancer. Mean age was 75 (range 56 to 89) and the male to female ratio was 1:1. The mean number of days between 1st and 2nd resection was 109 days i.e. 15.5 weeks (range 32 to 499, SD 80 days). A total of 12.1% of re-resections were carried out within a 6 week time period; 65.5% of patient samples included detrusor muscle in both the first and second histological sample; 48.3% of patients had the same consultant lead for both resections; 13.8% of patients were upstaged following re-resection.

Conclusion: The 2–6 week time period recommendation for re-resection has no level 1 evidence. Despite the delay, upstaging was found in only 13.8% of cases and literature reports an upstaging rate of 4–25%. However only 2/3 of all specimens contained detrusor muscle and under half of patients had the same surgeon for both procedures. Resection of bladder cancer is technically challenging and should be reserved for senior trainees and consultants. The re-resection should be performed by the same surgeon. Prospective study in the quality of resection and time to re-resection versus the outcome is required.

UP119

Outpatient Endoscopic Removal of Solitary Low Risk Ta-T1 Bladder Tumors < 1 cm under Local Anesthesia: Cost-Benefit Considerations

Brausi M, Verrini G, Peracchia G
Dept. of Urology, AUSL Modena, Carpi, Italy

Introduction and Objectives: Diathermy coagulation of small recurrent superficial bladder tumors in an outpatient setting has been advocated by many authors. It is relatively inexpensive, rapid, of little discomfort for the patient. However diathermy coagulation makes histological study impossible. Using cold cup biopsy allows the complete removal of the lesion with a sample of the surface muscle layer.

The objectives of this study were to evaluate the possibility of complete removal of small single primary and recurrent bladder tumors with a correct histopathological staging, the recurrent and progression rate, the tolerability of the procedure done with local anesthesia and its cost effectiveness.

Materials and Methods: A total of 105 patients with single primary or recurrent Ta-T1 bladder tumors < 1 cm were treated by urethro-cystoscopy and tumor removal in an outpatient setting. Seventy two out of 105 patients were male and 33 females. The mean age was 63.6 years. Thirty five out of 105 patients had primary while 70/105 had recurrent tumors. Eighty three out of 105 patients (80%) with primary (35) or recurrent (48) tumors received urethro-cystoscopy with tumor removal by cold forceps biopsy, deep biopsy of tumor bed and fulguration of peritumoral area and tumor base. Twenty two out of 105 (20%) patients were treated by fulguration alone (4 Laser). Urethral jelly with Lidocaine was the only anesthesia use in all patients. Tumor diameter varied from 3 to 10 mm. Twelve primary tumors were 10 mm in diameter. Staging and grading: 33/35 primary were TaG1-2, 2/35 T1G3.41/70 recurrent were TaG1-2, 6 were T1G2 and 1 had an univerted papilloma of the bladder neck. Ten out of 83 patients received adjuvant chemo-immunotherapy after tumor removal.

Results: Histological examination revealed muscle in the specimen of 58/83 patients (70%). Thirty three out of 35 primary tumors had muscle in their specimens. The mean follow-up was 36 months. Recurrence rate was 27%. Two out of 105 patients (8%) progress to > T1 and had cystectomy. The procedure was well tolerated by patients except for 1 case who required spinal anesthesia. Mild disuria was registered in approximately 25% of the patients while 5/105 had subsequent gross hematuria requiring re-hospitalization. The cost of the outpatient procedure was compared with the cost of the same procedure done routinely in the ward. In the outpatient setting biopsy and fulguration costed 130 Euro compared to 1548 Euro for the same procedure performed in the hospital. Every procedure had a money gain of 1.218.00 Euro.

Conclusions: Outpatients endoscopic treatment of single small superficial Ta-T1 bladder tumor without anesthesia is feasible, well tolerated and safe. A correct pathological staging can be obtained in 70% of cases. The 3-year recurrence rate was 27%. It is cost-effective.

UP.120

Improving Compliance of Single Post-Operative Dose of Mitomycin C after Transurethral Resection of Bladder Tumour Using an Intervention Bundle

Stroman L, Tschobortko B, Mensah E, Ellis D, Kaneshayogan H, Mazaris E
St. Mary's Hospital, London, UK

Introduction and Objectives: European Association of Urology (EAU) guidelines suggest that patients with non-muscle invasive bladder cancer undergoing transurethral resection of bladder tumour (TURBT) should receive a post-operative instillation of intravesical chemotherapy such as mitomycin C. Adherence may be reduced by factors such as pharmacy restrictions on delivery of chemotherapy to theatre suite, lack of awareness of guidelines by surgeon and inadequately trained staff to administer. This study aims to audit the induction of Mitomycin C in a tertiary referral centre against EAU guidelines, create an intervention bundle to overcome obstacles preventing administration and prospectively re-audit.

Materials and Methods: All patients that underwent TURBT over a 12-month period were analysed to audit mitomycin C administration. Information was taken from operative notes, inpatient notes and post-operative medication charts. An intervention bundle including pre-operative delivery of mitomycin C by surgical team, proforma placed pre-operatively in operation notes and induction of mitomycin C post-operatively by trained surgeon or nurse specialist was introduced. Prospective re-audit data was collected over a 6-month period following intervention bundle using the proforma.

Results: Sixty-four patients underwent TURBT from 1st March 2012 to 28th February 2013 prior to intervention bundle. Fifteen (23%) were given mitomycin C post-operatively within 24 hours. Reasons why mitomycin C was not given were documented in 8 cases. Mitomycin C was documented to be not available for 3 patients, contraindicated in 4 patients and prescribed but not given to 1 patient. Forty-one patients had no documented reason why mitomycin was not given. All patients were booked for check flexible cystoscopy. Twenty-three (35%) patients were correctly managed within the EAU guidelines. Thirty-one patients underwent TURBT from 1st July 2013 until 31st December following induction of intervention bundle. Twelve (39%) patients were given mitomycin C. Contraindications were documented for 16 patients; three had no reason documented why not given. All patients were booked for flexible cystoscopy. Administration of adjuvant chemotherapy was increased to 90% in line with EAU guidelines.

Conclusion: A pathway for induction of mitomycin C may help to overcome barriers preventing the administration of post-operative adjuvant chemotherapy.

UP.121

The Risk of Recurrence for cT1G3 Bladder Tumor after a 5-Year Disease Free Status Period

Palou J, Gavrillo P, Emiliani E, Gausa L, Gaya J, Rodríguez O, Peña J, Ochoa C, Rosales A, Villavicencio H

Fundació Puigvert, Barcelona, Spain

Introduction and Objectives: Due to the high risk for recurrence and progression, European guidelines recommended to perform a long life follow-up in high grade no-muscle-invasive bladder tumors (NMIBT). There are only a few studies that have assessed the evolution of grade III NMIBT after a 5-year free recurrence period. It has been previously reported that the recurrences rate is higher during the first two years after the initial treatment. The objective of this study was to analyze the incidence and recurrence after a 5-year disease free period in a cohort of high grade NMIBT (T1G3).

Materials and Methods: We conducted a retrospective study including 146 patients with NMIBT cT1G3 with/without CIS associated treated with BCG. The mean age was 64.9 years and median follow-up 86.8 ± 42 months. There was CIS associated in 65.1% of the cases. The recurrence rate, evolution and current disease status at 1, 2, 3, 4, 5 and >5 years intervals follow-up were analyzed.

Results: There were 56.2% of the patients free of tumor after 5-years follow-up. About 89% of all recurrences were developed during the first three years increasing to 99.8% after a 5-year control period. There was recorded more than 5 years follow-up for 112 patients. Sixty eight of them had no recurrences during the first five years. Only one patient recurred after being free of disease after 5-year follow-up (0.6%).

Conclusion: The incidence of recurrence in patients with NMIBT cT1G3 after a 5-year disease free period is low. After this free recurrent period, it could be reasonable to use less invasive diagnostic tests in this group of patients to have a correct cancer control, avoiding unnecessary and costly explorations.

UP.122

In-Hospital Outcomes and Costs of Transurethral Resection of Bladder Tumor in the Aging Society

Nakagawa T¹, Sugihara T², Yasunaga H¹, Azuma T¹, Suzuki M¹, Fujimura T¹, Fukuhara H¹, Nishimatsu H¹, Kume H¹, Homma Y¹

¹The University of Tokyo, Tokyo, Japan;

²Cleveland Clinic, Cleveland, USA

UP.121, Table 1.

| Year | 1 | 2 | 3 | 4 | 5 | >5 |
|-----------------------------|------|------|------|------|------|------|
| Overall recurrence (%) | 23.3 | 31.5 | 39 | 41.1 | 43.2 | 43.8 |
| Recurrence distribution (%) | 53.1 | 71.9 | 89.0 | 93.8 | 99.8 | 100 |

Introduction and Objectives: The incidence of bladder cancer increases along with aging. Our aim was to analyze the impact of aging on in-hospital outcomes and costs in transurethral resection of bladder tumor (TURBT).

Materials and Methods: We evaluated data from 45,898 patients in 844 hospitals who underwent TURBT for bladder cancer between 2007 and 2012, using the Diagnosis Procedure Combination database in Japan. The cases were divided into 4 groups according to the chronological age: <70, 70-79, 80-89 and >90 years old. Logistic regression analyses were conducted to determine the concurrent effects of aging, comorbidities, cancer stage and other factors on various in-hospital outcomes and costs.

Results: The number of patients in each group (<70, 70-79, 80-89 and >90) were 17,252 (37.6%), 16,595 (36.2%), 10,971 (23.9%) and 1,080 (2.4%), respectively. The overall in-hospital mortality and in-hospital mortality within 30-days post-TURBT were 0.08% (38 patients) and 0.04% (20 patients), respectively. These numbers increased significantly with aging ($p<0.001$). Blood transfusion rate (1.9%, 872 patients), pLOS (median 6 days, [IQR 4-8]), and total costs (4692 US dollars, [3774-5946]) also increased significantly in the order listed above. In logistic regression analyses, patients in the advanced age groups (70-79, 80-89, and >90 year-old) were at significantly higher

risk of blood transfusion, prolonged pLOS, and elevated costs, compared with patients in <70 year-old group. Patients in 80-89 and >90 year-old groups were at significantly higher risk of 30-day mortality than patients in <70 year-old group.

Conclusion: More than a quarter of patients undergoing TURBT were 80 or older. Although the in-hospital mortality was extremely low, it increased significantly in the patients older than 80. Furthermore, advanced age was significantly associated with higher transfusion rates, longer pLOS and elevated total costs. TURBT will be a surgery with high risk and high cost in aged patients.

UP123

The Evaluation of the Risk Factors for Bladder Cancer Recurrence after Transurethral Resection (TURBT) in Chinese Population

Na R¹, Liu S¹, Wu Y¹, Zhang N¹, Xu J², Jiang H¹, Ding Q¹

¹Fudan Institute of Urology and Dept. of Urology, Huashan Hospital, Fudan University, Shanghai, China; ²Center for Cancer Genomics, Wake Forest School of Medicine, Winston-Salem, USA

Introduction and Objectives: The risk factors of bladder cancer recurrence after transurethral resection of bladder tumor (TURBT) were poorly understood, especially in Chinese

population. This study evaluated the potential risk factors of recurrence based on a Chinese population.

Materials and Methods: A total of 432 cases that received TURBT procedure in our institute from 2001 to 2013 and with completed follow-up information (from onset to first recurrence) were recruited in this study. Clinical information such as age, gender, chief complains, pathology information, time to recurrence, the information of post-operative instillation of chemotherapy, etc, were collected.

Results: One hundred and thirty out of 432 patients (30.1%) were at the age of ≤ 60 , 118 (27.3%) were at the age of 60-70, 184 (42.6%) were at the age of ≥ 71 . Only seventy out of 432 (16.2%) were female. The number of lesions, the medication of post-operative instillation chemotherapy and the pathological classification (benign, low grade or high grade papillary urothelial carcinoma) were significantly associated with recurrence and stratified time to first recurrence (≤ 12 months vs. >12 months, ≤ 24 months vs. >24 months) (Table 1). The size of the largest lesion was a significant risk factor for time to first recurrence (not stratified, $P=0.023$ in univariate analysis, $P=0.044$ in multivariate linear regression analysis). In the multivariate logistic regression analysis, only the pathological classification was significantly associated with recurrence ($P=0.036$) and stratified time

UP123, Table 1. The evaluation of different factors that were considered as potential risk-factors for Bladder tumor recurrence after TURBT

| | Recurrent | Not recurrent | P-value | Time to First Recurrent | | | | | |
|---|-------------------|-------------------|---------------|-------------------------|-------------------|--------------|-------------------|-------------------|--------------|
| | | | | ≤ 12 m | >12 m | P-value | ≤ 24 m | >24 m | P-value |
| Age, Mean \pm SD (years) | 66.92 \pm 12.58 | 67.75 \pm 14.19 | 0.63 | 67.76 \pm 12.88 | 67.05 \pm 14.22 | 0.75 | 67.69 \pm 12.99 | 68.06 \pm 14.62 | 0.86 |
| Chief complain | | | | | | | | | |
| -Asymptom, n (%) | 14 (21.2%) | 52 (78.8%) | 0.49 | 6 (10.0%) | 54 (90.0%) | 1 | 11 (22.9%) | 37 (77.1%) | 0.42 |
| -With symptom, n (%) | 65 (17.8%) | 301 (82.2%) | | 39 (11.5%) | 301 (88.5%) | | 50 (17.5%) | 235 (82.5%) | |
| Size*, Mean \pm SD (cm) | 2.82 \pm 1.59 | 2.91 \pm 2.14 | 0.77 | 3.24 \pm 1.68 | 2.75 \pm 2.00 | 0.20 | 3.13 \pm 1.60 | 2.76 \pm 2.06 | 0.28 |
| No. of Lesion, Median (25%-75% quartile) | 1 (2-4) | 1 (1-2.25) | 0.032 | 1 (2-4) | 1 (1-2) | 0.1 | 1 (2-4) | 1 (1-2) | 0.004 |
| Medication** | | | | | | | | | |
| -THP or EPI, n (%) | 36 (19.3%) | 214 (80.7%) | 0.0012 | 19 (7.9%) | 221 (92.1%) | 0.018 | 29 (14.4%) | 173 (85.6%) | 0.011 |
| -Others, n (%) | 32 (29.4%) | 77 (70.6%) | | 17 (17.5%) | 80 (82.5%) | | 23 (27.7%) | 60 (72.3%) | |
| Immediate post-operative instillation of chemotherapy | | | | | | | | | |
| -Yes, n (%) | 15 (12.4%) | 106 (87.6%) | 0.43 | 11 (9.6%) | 103 (90.4%) | 1 | 13 (15.1%) | 73 (84.9%) | 0.85 |
| -No, n (%) | 34 (15.7%) | 180 (84.3%) | | 18 (9.2%) | 178 (90.8%) | | 25 (14.1%) | 152 (85.9%) | |
| Continued regular post-operative instillation of chemotherapy*** | | | | | | | | | |
| -Yes, n (%) | 53 (18.1%) | 240 (81.9%) | 0.89 | 29 (10.3%) | 252 (89.7%) | 0.39 | 41 (17.0%) | 200 (83.0%) | 0.34 |
| -No, n (%) | 26 (18.7%) | 113 (81.3%) | | 16 (13.4%) | 103 (86.6%) | | 20 (21.7%) | 72 (78.3%) | |
| *Size: the diameter of the largest lesion; | | | | | | | | | |
| **Medication: the chemotherapy medications that were used in post-operative instillation | | | | | | | | | |
| *** Continued regular post-operative instillation of chemotherapy: the follow-up schedule in China is the same as mentioned in US or European guidelines. | | | | | | | | | |

to first recurrence ($P=0.021$ for ≤ 12 months vs. >12 months and $P=0.005$ for ≤ 24 months vs. >24 months).

Conclusion: The number of lesions, the pathological classification and the size of the largest lesion might be considered in clinical practice to individualize the follow-up protocol. Epirubicin and Pirarubicin (Bacille Calmette-Guerin is not approved for bladder cancer in China) might be considered prior to other chemotherapy medications in post-operative instillation of chemotherapy.

UP.124

Half Dose BCG for Intravesical Immunotherapy in Non Muscle Invasive Bladder Cancer Using Different BCG Stains

Mihály Z¹, Dobrotă F¹, Mihály O², Juravle I¹, Bungărdan C³, Gherman V¹, Coman I¹

¹Dept. of Urology, Cluj-Napoca Municipal Clinic Hospital, Cluj-Napoca, Romania; ²Dept. of Anaesthesia and Intensive Care, Cluj County Clinic Hospital, Cluj-Napoca, Romania; ³Dept. of Pathology, Cluj Municipal Clinic Hospital, Cluj-Napoca, Romania

Introduction and Objectives: Intravesical Bacillus Calmette-Guérin (BCG) immunotherapy is now considered as the treatment of choice for intermediate and high-risk non muscle-invasive bladder cancer (NMIBC). Low accessibility in purchasing and even the absence of the two mainly used BCG stains, required us to use a third BCG stain for a period.

Materials and Methods: In a prospective observational study 40 patients with intermediate and high-risk NMIBC underwent adjuvant intravesical Bacillus Calmette-Guerin instillation therapy after a complete TUR-BT. Patients received the Southwest Oncology Group (SWOG) regimen, with six weekly instillations of half dose BCG, 3 mo rest, and three further weekly instillations of half dose BCG. Maintenance therapy with three weekly instillations at 6, 12, 18, 24, 30 and 36 months. Three different BCG stains were used.

Results: Forty patients were included, complete response rate at the first control (recurrence free cystoscopy at 3 months after start of treatment) was 100% in the first 35 patients with two different BCG stains. Based on a median follow-up of 39 month, no BCG-refractory (progression in stage or grade by 3 mo after first cycle of BCG) and no BCG-resistant (recurrence or persistence after 3 mo after the induction cycle) patients were observed in the first 35 patients. At one year no tumor recurrence or progression was observed. With the third BCG stain three of the five new patients become BCG-resistant. None of the patients receiving intravesical therapy stopped treatment due to toxicity.

Conclusions: Bacillus Calmette-Guerin maintenance with half dose BCG proved effective.

Complete response rate with half dose intravesical BCG immunotherapy were similar to those with complete dose from literature. Although it is a small number of patients may not all products on the market have similar efficacy in the treatment of NMIBC.

UP.125

Trying To Achieve a 3-Year Maintenance BCG Programme for High-Risk Superficial Bladder Cancer: How Much Pain for How Much Gain?

Amer T¹, Evans S², Kobiak K³, Kynaston H³, Hughes O³

¹Ayr Hospital, Ayr, Scotland, UK; ²Bath Hospital, Bath, UK; ³University Hospital Wales, Cardiff, UK

Introduction and Objectives: The EORTC-GU group has demonstrated that 3-year maintenance BCG reduces recurrences in high-risk patients versus a 1-year programme but not progressions or deaths. The aim of this study was to determine completion rates, average number of cycles completed and indications for stopping 3-year maintenance BCG in a UK patient population.

Materials and Methods: Prospective cohort review of patients starting a maintenance BCG programme for high grade superficial bladder cancer between 01/2006 and 01/2011 who declined or were deemed unfit for primary cystectomy. Outcome measures: What percentages of patients completed induction, started maintenance cycles and completed full programme? Average number of cycles completed by the whole cohort. Indications for stopping maintenance BCG: intolerance (local or systemic), resistance, recurrence, progression or co-morbidity.

Results: Demographics: 150 patients (81% male) were identified. Mean age was 73 years with 26% of patients being aged 80 or over. What can patients complete? Ninety two percent of patients completed induction and overall 78% started the first maintenance cycle. Excluding a small number of patients who are still in progress only 10% (n=14) of the cohort have been able to complete the full 3-year maintenance programme. Those patients who stopped maintenance completed a mean of 3 maintenance cycles.

Conclusion: In this UK cohort we observed only a small percentage of patients being able to complete full 3-year maintenance. Twenty five percent of the cohort was over the age of 80 and this patient group is only likely to rise in the future. On average our patients were able to complete a 1-year programme and given the recent EORTC data this seems a realistic compromise of oncological treatment and tolerance.

UP.126

Collins Loop En Bloc Resection (CLEbR) for Accurate Staging of Primary Non-Muscle Invasive Bladder Cancer: Early Experience

Rodolfo H¹, Castaldo L¹, Pasini L¹, Seveso M¹, Taverna G¹, Ferro M², Bottero D², Puppo P³, de Cobelli O², Graziotti P¹

¹IRCCS Humanitas, Milan, Italy; ²IEO, Milan, Italy; ³Ospedale Sanremo, Sanremo, Italy

Introduction and Objectives: A primary aim of transurethral resection of bladder tumors is to determine the depth of invasion or clinical stage. Transurethral resection is a stochastic procedure subject to variations in tumor type, surgical technique and pathological evaluation. Exact pathological staging of bladder cancer is crucial for determination of further treatment. One limiting factor is the surgical 'incise and scatter' technique that might contribute to tumour recurrence. We present initial results with using a Collins loop (with a cutting current) en bloc resection (CLEbR) of bladder tumours for treatment and accurate staging of solitary transitional cell carcinoma of the bladder.

Materials and Methods: April 2011 - February 2013, 67 patients (48 male - 19 female with non-muscle-invasive bladder cancer (NMIBC)) underwent transurethral en bloc resection using a Collins Loop. Tumor size ranged to 0.5-45 mm and multifocality was present in 6% of cases. En bloc resection was applied on all of the tumours. On 59 of the 67 patients, a re-resection was performed after 6 weeks. The bladder wall is incised around the lesion using a Collins loop, starting from apparently 'normal' mucosa surrounding the base and then extending through the subepithelial connective tissue, muscularis mucosae and muscularis propria strata. The resected 1-piece specimen was grasped with a loop electrode and retrieved. After bladder tumor resection the resected base was observed carefully to assess perforation and bleeding. When the tumor size was greater than 3 cm, excision of the lesion could be easily achieved by mean of a resectoscope with a 5 mm working channel. After resection, the lesion is grasped with the forceps and retrieved with the resectoscope. All cases of high-risk NMIBC underwent second-look after 30-45 days.

Results: Pathology reported urothelial carcinoma with low grade stage Ta, T1 high-grade and T2 high-grade respectively in 38 (56.7%), 23 (34.3%), 6 (8.9%). All of the resected specimens provided detrusor muscle, no uncontrollable bleeding, perforation or other serious complications were observed. To date, with a mean follow-up of 16.5 months, the recurrence rate in patients with NMIBC is 13.5%.

Conclusion: CLEbR has been proven safe and effective for both, treatment and pathological staging of NMIBC; therefore could be an appropriate tool for accurate staging with possibly lower scattering potential for the assessment and treatment of patients with NMIBC. The

objective advantage of accurate pathological examination (identification of microfocal invasion of lamina propria or of muscular wall, surgical margins assessment) is associated with a substantial safe technique. Long-term data and larger dataset of cases are necessary to demonstrate an advantage in terms of recurrence or progression.

UP.127

Impact of a Dedicated Teaching Program on Quality Outcomes of White Light TURBT

Hurle R¹, Castaldo L¹, Pasini L¹, Seveso M¹, Taverna G¹, Ferro M², Naselli A³, Bottero D², Puppo P⁴, de Cobelli O², Graziotti P¹

¹Div. of Urology, Istituto Clinico Humanitas (IRCCS), Milan, Italy; ²Div. of Urology,

European Institute of Oncology, Milan, Italy;

³Div. of Urology, Istituto Clinico humanitas

Mater Domini, Castellanza, Italy; ⁴Div. of

Urology, Ospedale Civile, Sanremo, Italy

Introduction and Objectives: To assess the impact of a dedicated teaching program on the quality outcomes of TURBT.

Materials and Methods: Patients with NMIBC, who had undergone complete first resections were registered in a prospectively maintained database from 1998-2010 at the department of Urology Humanitas Gavazzeni Bergamo Italy. From 2005, surgeons, juniors and seniors, underwent a dedicated training program with the aim to improve the quality outcomes of TURBT, 1) presence of detrusor muscle in the specimen, 2) Cis detection rate, 3) complication rate (namely clinically significant bladder perforation or bleeding), 4) 3 months recurrence rate or persistence of disease after reTUR. A multivariate logist regression was performed for each outcome, the variables included in the analysis were experience of surgeon (senior or junior), lesion dimension (< or > 3cm), single or multiple lesion, low or high grade disease, Ta or T1, surgeon submitted or

not to the teaching program.

Results: A total of 427 patients were registered in the database, 199 from 1998 to 2004, before the introduction of the teaching program, and 228 from 2005 to 2010. In regard to the incidence of detrusor muscle, Cis detection, complications and recurrence, the rate before and after the teaching program were respectively 118/199 (59%) and 187/228 (82%), 12/199 (6%) and 35/228 (15%), 63/199 (32%) and 61/228 (27%), 38/199 (19%) and 15/228 (7%). Results of the multivariate analysis were summarized in Table 1.

Conclusions: The teaching program had a favorable, independent, statistically significant impact for each of the outcome examined except for the recurrence/persistence of disease.

UP.128

Active Surveillance Protocol NMIBC

Hurle R¹, Castaldo L¹, Pasini L¹, Seveso M¹, Taverna G¹, Ferro M², Bottero D², Puppo P³, de Cobelli O², Graziotti P¹

¹Div. of Urology, Istituto Clinico Humanitas (IRCCS), Milan, Italy; ²Div. of Urology,

European Institute of Oncology, Milan, Italy;

³Div. of Urology, Ospedale Civile, Sanremo, Italy

Introduction and Objectives: To report our experience with a select group of patients with low-risk tumors included in an observation and monitoring program after the diagnosis of recurrence.

Materials and Methods: We performed a prospective cohort study in patients diagnosed with recurrent, non muscle-invasive bladder cancer (NMIBC) maintained under an active surveillance protocol. Inclusion criteria were: small (<10 mm) papillary, asymptomatic tumor with negative urinary cytology was found on follow-up cystoscopy in patients who had previous resections of NMIBC (Stage pTa, pT1a), grade 1-2, bladder tumors, and number

of tumors <5. No symptomatic patients or those with carcinoma *in situ* or grade 3 tumors were included. All patients included in the observation group were closely monitored with cytology and flexible cystoscopy every 3-4 months. All pathologic studies were performed by a single experienced uropathologist and fully dedicated cytologists.

Results: The data from 48 patients (63 active surveillance events) were analyzed. The mean patient age was 69.8 years. The median follow-up was 33.6 months. Pathologic characteristics before observation were pTa in 81.1%, Stage pT1a in 18.9%, grade 1 in 77.1%, and grade 2 in 22.9%. The median time patients remained in observation was 12.7 months. 89.5% of the patients did not experience progression in stage and 86.8% in grade. None of the patients experienced progression to muscle-invasive disease. The patients who discontinued the observation period and who underwent transurethral resection are those who have had an increase in the number and/or size of the lesions, symptoms (mainly hematuria), or if the surveillance urine cytology findings were positive for malignancy.

Conclusions: Active surveillance protocol is reasonable in patients presenting with small, recurrent papillary bladder cancer after resection of low-grade Ta T1a tumor(s). Many surgeries can be spared, and the risk for tumor progression in these patients is minimal. Whenever a significant change in tumor morphology or size is noted, the patient should be referred for a standard transurethral resection of the tumor.

UP.129

The Efficacy of Solifenacin for Prevention of Catheter Related Bladder Discomfort after Transurethral Resection of Bladder Tumor in Nonmuscle Invasive Bladder Cancer Patients: A Prospective, Randomized, Multicenter Study

Chung J¹, Seo H², Ha H³, Park S⁴, Kim J⁵, Park

UP.127, Table 1. Multivariate logistic regression findings

| | Incidence of muscle in the specimen | Cis detection rate | Complications rate (bleeding or perforation) | Recurrence/persistence disease rate |
|-------------------------|-------------------------------------|---------------------------------------|--|-------------------------------------|
| | Odds ratios, 95% CI (p) | Odds ratios, 95% CI (p) | Odds ratios, 95% CI (p) | Odds ratios, 95% CI (p) |
| Senior surgeon | 2.3497, 1.4724 - 3.7499 (0.0003) | 0.5770, 0.2583 - 1.2888 (0.1798) | 0.5580, 0.3028 - 1.0285 (0.0615) | 0.3596, 0.2257 - 0.5729 (0.0000) |
| Lesion greater than 3cm | 0.4249, 0.2452 - 0.7363 (0.0023) | 1.1742, 0.5103 - 2.7019 (0.7056) | 1.5820, 0.7873 - 3.1790 (0.1976) | 2.3999, 1.4101 - 4.0842 (0.0013) |
| Multiple lesion | 0.5572, 0.3327 - 0.9332 (0.0262) | 1.2746, 0.5902 - 2.7524 (0.5368) | 0.8998, 0.4504 - 1.7975 (0.7649) | 2.4387, 1.4960 - 3.9757 (0.0003) |
| High grade tumor | 0.3969, 0.1674 - 0.9409 (0.0359) | 134.9510, 33.2884 - 547.0901 (0.0000) | 1.2734, 0.4362 - 3.7172 (0.6584) | 0.7915, 0.3375 - 1.8563 (0.6584) |
| T1 tumor | 3.1190, 1.2559 - 7.7461 (0.0143) | 0.2085, 0.0663 - 0.6558 (0.0073) | 1.1678, 0.3914 - 3.4844 (0.7810) | 2.2201, 0.9480 - 5.1994 (0.0662) |
| Teaching program | 3.7029, 2.2997 - 5.9621 (0.0000) | 4.2944, 1.8261 - 10.0989 (0.0008) | 0.3005, 0.1578 - 0.5724 (0.0003) | 0.6825, 0.4307 - 1.0814 (0.1038) |

H⁶, Sohn D⁷, Kim D², Choo J², Chang S²

¹Dept. of Urology, Kosin University Hospital, Busan, South Korea; ²Dept. of Urology, National Cancer Center, Koyang, South Korea; ³Dept. of Urology, Pusan National University Hospital, Busan, South Korea; ⁴Dept. of Urology, Yangsan Pusan National University Hospital, Yangsan, South Korea; ⁵Dept. of Urology, Catholic University Hospital, Incheon, South Korea; ⁶Dept. of Urology, Korea University Hospital, Seoul, South Korea; ⁷Dept. of Urology, Catholic University Hospital, Seoul, South Korea

Introduction and Objectives: To evaluate the incidence of catheter-related bladder discomfort (CRBD) and efficacy of solifenacin in preventing CRBD after transurethral resection of bladder tumor (TUR-BT) in nonmuscle invasive bladder cancer patients.

Materials and Methods: Our prospective, randomized, multicenter trial enrolled 111 patients undergoing elective TUR-BT under general anesthesia with nonmuscle invasive bladder cancer. Patients were divided into two groups: solifenacin 5mg (Group S) and control (Group C). Among the patients included in the study patients, 84 completed study patients were analyzed. Group S (n=41) received solifenacin 5mg orally the day before, the day of the operation and the next day and Group C (n=43) received usual care. After TUR-BT patients were catheterized with a Foley catheter (mainly 18Fr) and the balloon was inflated with 10 ml distilled water. The CRBD was assessed

at 1hr and 2hrs after operation in a recovery room and a general ward, respectively. Severity of CRBD was graded with a simple four-step severity scale: no pain; mild pain (revealed only by interviewing the patient); moderate (a spontaneous complaint by the patient) and severe discomfort (agitation, loud complaints and attempt to remove the Foley catheter). Pain was assessed during 3 days starting 6hrs after TUR-BT using a VAS. Standardized postoperative analgesia administered via a patient-controlled analgesia system. Foley catheter was removed at 3 days later after TUR-BT and checked uroflowmetry and postvoiding residual volume.

Results: As shown in Table 1, the incidences and severities of CRBD at 1hr and 2hrs were no differences in 2 groups (p>0.05). Overall VAS scores were no differences in 2 groups (p>0.05). However, VAS score of 2 days after TUR-BT was lower significantly (p=0.041). None of the patient receiving solifenacin had severe discomfort or voiding difficulty in post-operative period.

Conclusion: The incidence of CRBD at 1hr and 2hrs after TUR-BT in nonmuscle invasive bladder cancer patients was 76.7% and 72.1%. The incidence was similar with previous study. Pre-treatment of solifenacin 5 mg did not reduce the incidence and severity of CRBD after TUR-BT in nonmuscle invasive bladder cancer patients.

UP.130

Urinary Dysfunction in Patients with HTLV-1 Associated Myelopathy

Feizadeh K. B¹, Etemadi M², Esmaili H³, Amiri Tehrani Zadeh M⁴

¹Endoscopic and Minimally Invasive Surgery Research Center, Kidney Transplantation Complications Research Center, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ²Dept. of Neurology, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ³Dept. of Epidemiology, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ⁴Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: HAM/TSP is one of the endemic diseases of Khorasan region of IRAN. Many of these patients, beside various neurological presentations, especially in motor system, suffer from urinary problems caused by neurogenic bladder dysfunction. Quantitative description of the bladder function in these patients needs various clinical and para clinical assessments including urodynamic studies. **Materials and Methods:** In this study 50 patients were evaluated from the point of neurological and urological symptoms, in the form of some questionnaires. Therefore, 10 people among them, who had urinary problems and tend to do urodynamic assessments were chosen and

UP.129, Table 1.

| | Group S (n=41) | | Group C (n=43) | | p value |
|------------------------------|----------------|---------|----------------|---------|---------|
| CRBD at 1hr (n (%)) | | | | | |
| mild | 22 | | 19 | | 0.728 |
| moderate | 8 | | 12 | | |
| severe | 1 | | 2 | | |
| total | 31 | (75.6%) | 33 | (76.7%) | 0.903 |
| CRBD at 2hrs (n (%)) | | | | | |
| mild | 22 | | 21 | | 0.303 |
| moderate | 4 | | 8 | | |
| severe | 0 | | 2 | | |
| total | 26 | (63.4%) | 31 | (72.1%) | 0.395 |
| VAS (mean±SD) | | | | | |
| at 6hrs | 2.12±1.31 | | 2.86±1.91 | | 0.054 |
| at 1day | 1.49±1.03 | | 1.91±1.43 | | 0.336 |
| at 2days | 1.07±0.91 | | 1.67±1.58 | | 0.041 |
| at 3days | 0.73±0.78 | | 1.10±0.97 | | 0.528 |
| Qmax (ml/sec) (mean±SD) | 15.19±7.84 | | 18.94±13.84 | | 0.095 |
| Voided volume (ml) (mean±SD) | 190.39±113.30 | | 192.24±107.22 | | 0.905 |
| PVR (ml) (mean±SD) | 27.99±28.98 | | 35.10±42.21 | | 0.504 |
| Used analgesics (ea) | 1.74±2.15 | | 2.21±2.44 | | 0.53 |

para clinical evaluations like urinary system ultrasonography, urea, creatinine, urine analysis, urine culture and urodynamic studies including, uroflowmetry, cystometry and electromyography were performed.

Results: Forty six patients (92%) out of 50 had urinary problems and 17 (34%) had sexual dysfunctions. Frequency (78.34%) and urgency (39.67%) had the most, and true incontinence (8.69%) had the least prevalence in urinary symptoms. Among the 10 patients under urodynamic study, 70%, 60% and 50% had detrusor instability, sphincter-detrusor dyssynergia and decreased bladder capacity.

Conclusion: Clinical and para clinical findings, all confirm detrusor hyperactivity and spastic neurogenic bladder in patients with HAM/TSP.

UP.131

Pilot Study of a Self-Management Program for Lower Urinary Tract Symptoms in Men

Jacobsen S¹, Wallner L², Emberton M³, Avila C¹, Xiang A¹, Coleman K¹, Loo R⁴

¹Kaiser Permanente Southern California, Pasadena, USA; ²University of Michigan, Ann Arbor, USA; ³University College London, London, UK; ⁴Southern California Permanente Medical Group, Downey, USA

Introduction and Objectives: Lower urinary tract symptoms (LUTS) remain a significant burden on the quality of life of aging men. A recent trial in the United Kingdom suggested that a self-management program delivered in a classroom setting could have results superior to those achieved with usual care, without the side effects and expense of pharmacologic or surgical treatment. We sought to pilot test the program in a large, integrated managed care organization in the US (Kaiser Permanente Southern California-KPSC), in preparation for a trial of a personalized web-based version of the curriculum.

Materials and Methods: In collaboration with the UK team, we adapted the course materials for men in the US. Two groups of men with 7 and 6 men each were recruited from a urology practice embedded in KPSC. The curriculum was delivered in three sessions by a trained health educator working from the detailed instructor's manual. The curriculum included behavioral modification, medication management and bladder retraining. Prior to the first class session, men completed a questionnaire that elicited symptom frequency (International Prostate Symptom Score). At the conclusion, men were asked to complete an evaluation.

Results: Of the 13 men enrolled, 12 completed all items on the baseline questionnaire. At the conclusion of the program, 9 of the 13 men completed the class evaluation form. Of these, 8 (89%) reported that they were satisfied with their time in the program and 7 (78%) reported learning new skills and techniques to help manage their symptoms. Moreover, nearly two

thirds of the men (66%) said that they would be willing to take the course if offered on-line. Comments from participants highlighted the need to tailor the goal setting to personal values/concerns and the importance of treating the intervention as prescribed therapy.

Conclusion: These data demonstrate the usefulness and willingness of men to participate in a self-management program for LUTS. Moreover, they suggest that a personalized, web-based version may be acceptable to men in this age group, providing an affordable and scalable approach to a large number of men.

UP.132

Comparative Study about the Long-Term Follow-up Results of Photoselective Vaporization for Benign Prostatic Hyperplasia Classified by the Volume of Prostate

Shim K, Seo Y, Heo J

Busan Veterans Hospital, Busan, South Korea

Introduction and Objectives: With use of 12 months follow-up data, this study was planned to compare the long-term efficacy and complications after photoselective vaporization of prostate (PVP) with potassium-titanyl-phosphate (KTP) laser for treatment of symptomatic benign prostatic hyperplasia (BPH), classified by volume of prostate.

Materials and Methods: We performed comparative analysis of 182 patients suffering with symptomatic BPH, who had undergone PVP using KTP laser, between June 2009 and December 2012. All patients were classified into three groups by the volume of prostate (<40cc; Group I, 40-60cc; Group II, >60cc; Group III). Clinical efficacy of each group was compared in terms of International Prostate Symptom Score (IPSS), quality of life (QoL) index, changes of maximum urinary flow rate (Qmax), postvoid residual urine (PVR) and complications. Student's t-test and ANOVA were performed for statistical analysis.

Results: Mean age of patients was 71.6±9.4. With respect to each of three groups, efficacy parameters (IPSS, QoL, Qmax and PVR) of each group were significantly improved (p<0.05). In Group I, preoperative parameters (IPSS, QoL, Qmax and PVR) were 22.8±3.7, 4.4±0.6, 8.7±3.0ml/sec and 30.1±17.3ml, respectively. And postoperative parameters were 10.5±2.6 (p<0.001), 2.0±0.7 (p<0.001), 18.0±5.4ml/sec (p<0.001) and 20.5±13.5ml (p<0.05), respectively. In Group II, preoperative parameters were 23.1±3.5, 4.6±0.7, 7.8±2.8ml/sec and 68.2±34.2ml, respectively. And postoperative parameters were 12.2±3.0 (p<0.001), 2.0±0.9 (p<0.001), 16.6±4.8ml/sec (p<0.001) and 25.6±12.8ml (p<0.05), respectively. In Group III, preoperative parameters were 23.5±3.1, 4.6±0.5, 7.9±2.9ml/sec and 145.0±102.0ml, respectively. And postoperative

parameters were 16.6±4.7 (p<0.05), 3.2±1.1 (p<0.05), 17.0±5.0ml/sec (p<0.001) and 45.8±32.6ml (p<0.05), respectively. However, in Group III, postoperative IPSS and QoL index were lower than average value. Especially, items for frequency, nocturia and urgency of IPSS resulted in bad grades. The rate of complications in Group III were higher than those in Groups I and II, such as urinary retention, delayed hematuria and bladder neck contracture.

Conclusion: Despite the excellence of PVP with KTP laser, careful consideration must be given when operation is performed on patients with large prostate.

UP.133

Urinary Catheter Diary Is a Useful Tool in Tracking Causes of Non-Deflating Catheter Balloons

Okorie C, Nwigboji N, Nwaedu U

Dept. of Surgery, Federal Teaching Hospital Abakaliki, Nigeria

Introduction and Objectives: Urinary catheter diary is an important catheter usage documentation tool that is however rarely utilized in many medical facilities in the developing economies. This paper reports on introducing catheter diary towards identifying and resolving problem of non-deflating catheter balloons and other catheter related problems in a tertiary institution after an unusual high incidence of non-deflating catheters – 3 cases in one week.

Materials and Methods: From August 2013, for every patient undergoing catheterization in our weekly urology clinic, the following information was documented in designated registers: indication for catheterization, date of catheterization, Foley catheter brand, type of catheter material, catheter batch number, manufacturer, expiry date, encountered problems, date of next catheter change - which was every 3-4 weeks for scheduled catheter changes. The main outcome measures were to determine the cause/source of non-deflating catheter balloons as well as other catheter related problems.

Results: Over a 7 month period, for a total of 109 patients - 337 catheterizations (both new and scheduled changes) were done utilizing 8 different brands of Foley catheters: Agary-21, Zenith-68, Newlife-39, U-mec-92, LifeCare-46, Medihel-38, Hospibrand-27, Lifesign-6. All these Foley catheters were latex silicone coated and manufactured in China. Non-deflating catheter balloons were encountered in 5 out of 21 cases of the Agary brand and on early discontinuation of usage - we ceased encountering cases of non-deflating catheter balloons. The other encountered problem was inability to inflate catheter balloons noted in 8 out of 92 cases of the U-mec brand (usage has also been stopped).

Conclusions: Failure to deflate the balloon of a Foley catheter can be a very frustrating

experience both for the patient and the health care provider. Keeping a catheter diary is a useful tool in tracking and solving such catheter related problems and should be encouraged in health care facilities where such is not done. Documented problems will further help catheter manufacturers improve on the quality of urinary catheters available in the market.

UP.134

Teaching All Male Patients with Acute Urinary Retention How to Self-Catheterise: Is It Worth It?

Kontos S, Lightbody B, Miller G, Dunn I
Monklands Hospital, NHS Lanarkshire, Airdrie, Scotland, UK

Introduction and Objectives: Acute urinary retention (AUR) is a common urological emergency. Intermittent self-catheterisation is a useful technique for both those failing, as well as those able to void after catheter removal (TWOC), and furthermore facilitates outpatient management of this problem.

Materials and Methods: Male patients presenting with uncomplicated AUR to our department are offered outpatient management, following discharge with an indwelling catheter and supporting items, and tamsulosin. An outpatient TWOC is arranged within seven days. Regardless of TWOC outcome patients are offered tuition in intermittent self catheterization. A random sample of 100 men attending in 2012 with AUR was audited with records obtained in 95. The aim was to confirm that this pathway management was safe and acceptable to patients.

Results: Age range 43-90 (median 70.5). Eighty seven out of 95 patients attending for TWOC were taught to perform ISC independently, four with help of a partner and 4 either could or would not perform ISC. Thirty two out of 95 continued until definitive treatment, 20/95, 14/95 and 7/95 were advised to discontinue ISC within one week, one month and three months respectively due to return of satisfactory voiding. Seven out of 95 continued long-term ISC and 5/95 chose to return to indwelling catheter. Eight patients were managed elsewhere. There were 11 minor complications.

Conclusions: ISC is a useful and acceptable treatment for men with AUR at the time of TWOC. It appears to allow some failing TWOC to return to spontaneous voiding, without the need for re-catheterisation.

UP.135

Prediction of the Resected Tissue Weight from Digital Rectal Examination and Total PSA before Transurethral Resection of Prostate

Tharwat M, Mahmoud O, Harraz A, El-Assmy A, Elshal A, Barakat T, Elsaadany M, El-Halwagy S, El-Nahas A, Ibrahim E

Urology and Nephrology Center, Mansoura, Egypt

Introduction and Objectives: To determine the ability of PSA and digital rectal examination (DRE) to estimate resected tissue weight (RTW) before TURP.

Materials and Methods: A retrospective analysis of 983 patients who underwent TURP between December 2006 and December 2012 was conducted. The primary outcome is the RTW required for clinical improvement and is not associated with re-intervention. Age, PSA, body mass index (BMI) and DRE were correlated and modeled with RTW. DRE was defined as DREa (small vs. large) or DREb (small vs. moderate vs. large) according to surgeon report. Equations to calculate RTW was developed and tested using ROC curve analyses.

Results: Significant correlations were found between PSA ($r = 0.4$, $p < 0.0001$), DREa ($r = 0.38$, $p < 0.0001$), DREb ($r = 0.5$, $p < 0.0001$) and RTW while BMI and age showed weak correlations. Using PSA and DREb (model 3) showed significantly better ability to estimate RTW than using PSA and DREa (model 2) or PSA alone (model 1) based on ROC curve analyses. Equation developed by model 3 [$RTW = 1.2 + (1.13 \times PSA) + (DREb \times 9.5)$] had sensitivity and specificity of 82% and 71% for estimating $RTW > 30$ g and 84% and 63% for estimating $RTW > 40$ g, respectively.

Conclusions: PSA and DRE can predict RTW prior to TURP. The developed equations could help in surgical planning. Further studies are needed for validation.

UP.136

Prostate Cancer Is Not Associated with Lower Urinary Tract Symptoms in the Modern Era: Analysis of a Contemporary Propensity Score-Matched Cohort

Bhindi B, Kulkarni G, Hamilton R, Toi A, van der Kwast T, Evans A, Jewett M, Zlotta A, Trachtenberg J, Finelli A, Fleshner N
University Health Network, Toronto, Canada

Introduction and Objectives: Prostate cancer (PC) often enters in the differential diagnosis for lower urinary tract symptoms (LUTS), based on data from the pre-PSA era. Our aim was to determine if PC is associated with worse LUTS, with attention to cancer volume and grade, in a contemporary cohort.

Materials and Methods: Men diagnosed with PC on biopsy were matched 1:1 to controls with negative biopsy on age, prostate volume, and a propensity score predicting the probability of PC diagnosis. IPSS was compared between PC cases and controls using paired statistics, stratifying on grade and cancer volume (low volume: ≤ 3 cores or $\leq 1/3$ of total number of cores involved, and no core with $>50\%$ cancer involvement; high volume: $>50\%$ of cores involved and $>50\%$ cancer involvement in ≥ 1 core; intermediate volume: cancers not

meeting low/high volume criteria). A sensitivity analysis was performed repeating the match for high volume cancers only, and excluding users of BPH meds.

Results: In our cohort of 1300 men, there were 275 (42.3%) Gleason 6 cancers, 313 (48.2%) Gleason 7 cancers, and 62 (9.5%) Gleason 8-10 cancers. There was no difference in IPSS between PC cases and matched benign controls (PC: median 6.5 (IQR=3-12) vs. controls: 7 (IQR=3-13), $p=0.34$; 90% power to detect a difference of 1.08 IPSS points). No stratum of volume or grade was significantly worse than matched controls. The sensitivity analysis yielded a matched cohort of 292 men. High-volume PC was again not significantly associated with IPSS (PC: median=6 (IQR=6-12) vs. controls: median=5.5 (IQR=2-10), $p=0.16$).

Conclusion: In our contemporary cohort of patients without prior PC diagnosis, newly diagnosed PC was not associated with worse LUTS as measured by the IPSS compared to benign controls. This suggests that PC is an uncommon cause of LUTS in the modern era. Outlet obstruction from cancer is likely a late event in the natural history of PC progression.

UP.138

Clinical and Immunochemical Significance of 34BE12(CK903) Application for Benign Prostate Hyperplasia

Papava V, Chovelidze S, Kochiashvili D, Khardzeishvili O, Khuskivadze A, Imedadze A, Iaralashvili N, Koberidze G
Tbilisi State Medical University, Tbilisi, Georgia

Introduction and Objectives: Our objective was to identify the peculiarities of high-molecular weight cytokeratin 34BE12(CK903) expression as one of the differentiating factors in glandular type of benign prostatic hyperplasia (BPH). Given the inability of routine histological methods to differentiate prostatic intraepithelial neoplasia (PIN) and Gleason score 2(1+1) adenocarcinoma from BPH, improvement of the techniques able to resolve this problem is increasingly important. The cytokeratin 34BE12(CK903) is synthesized by normal prostate basal cells. As high-molecular weight cytokeratin synthesis does not occur in cancerous cells, negative immunohistochemical reaction to 34BE12(CK903) is regarded as one of the markers of malignization.

Materials and Methods: We studied a total of 35 formalin-fixed paraffin embedded samples, 25 from transurethral resection of the prostate (TURP) and 10 from open adenectomy. We used anti- α -smooth muscle actin and anti-34BE12(CK903) monoclonal antibodies to identify smooth muscle cells and basal cells, respectively. The HE and Van Gieson's picro-fuchsin stained adenectomy samples showed difference between glandular nodes by form and development of the glands, their secretory

and basal epithelium, and morphofunctional properties of smooth muscle and fibrous components. The TURP samples were dominated by fibrovascular and α -smooth muscle actin-positive smooth muscle elements.

Results: According to histological patterns, the following variants were identified: 1. benign glands of normal structure; 2. glands with widespread epithelial atrophy; 3. glands with partial atrophy (combination of atrophic and non-atrophic changes); 4. glands with excessive basal cells, i.e. basal cell hyperplasia; 5. glands with secretory cell (acinous cell) excess; 6. high-grade PIN and adenocarcinoma. Benign cell glands were relatively rare. Their lumen was lined with two layers of cuboidal basal and columnar or cuboidal secretory epithelium. The 34BE12(CL903) cytokeratin was expressed in all basal epithelial cells. The lumen was surrounded with a thin layer of collagen fibers further transforming into abundant circular smooth muscle.

Conclusions: Based on the characteristics of 34BE12(CL903) expression in basal cells, several variants of glandular BPH were identified: benign glands with normal structure, glands with widespread epithelial atrophy, glands with partial atrophy, glands with excessive basal cells, and glands with excessive acinuous cells.

UP.139

Urinary Retention following Male Lower Limb Arthroplasty

Sharaf A¹, Bliebleh S², Hawkyard S²

¹City Hospitals Sunderland, Sunderland, UK;

²Scarborough General Hospital, Scarborough, UK

Introduction and Objectives: Acute postoperative urinary retention is a common complication after lower limb arthroplasty, up to 38% of the 200,000 patients in the UK every year. After the recent establishment of an Enhanced Recovery Programme, we took the opportunity to audit retention in the above group, and assess whether the International Prostate Symptom Score (IPSS) and other patient related factors could predict the likelihood of patients developing urinary retention after lower limb arthroplasty and if the Enhanced Recovery Programme has an effect.

Materials and Methods: One hundred, consecutive male patients undergoing elective lower limb arthroplasty were prospectively followed through their inpatient stay. Preoperative IPSS were completed for all. Preoperative drug treatment and past lower urinary tract surgery was documented. The type of anaesthesia, analgesia and volume of per operative fluid was recorded, and duration of surgery noted.

Results: The average age was 68 years. Twelve percent of men developed urinary retention post operatively, which is on the low side of incidences quoted in the literature (10-38%). Age, IPSS, and operative time, were not

different in the 2 groups. Length of stay was prolonged by 36 hours for those men developing retention, and often necessitated re-attendance for trial without catheter.

Conclusion: Was our clinical impression so wrong, or has ERP reduced the incidence? Are there other predictive factors that may allow us to target an "at risk" group with pre-emptive alpha blockers or alternative interventions? Postoperative retention cannot be easily predicted and increases the length of stay and patient morbidity.

UP.142

The Prevalence of Metabolic Syndrome in BPH

Nikoobakht M, Dialameh H, Hashemi Aghdam A, Sharifi A

Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: Benign prostatic hyperplasia (BPH) is the most common non-malignant prostate disease with high prevalence in older men which can significantly affect the health of these individuals. Despite the high importance, the exact mechanism is still not clear, although recent studies discussed a possible link between metabolic syndrome and its components, and BPH. Today metabolic syndrome has become prevalent. Its prevalence increases with aging and it is one of the most important co-morbidities in patients with BPH. We examined the prevalence of metabolic syndrome and each of its components, and their relationship with prostate volume in patients with BPH.

Materials and Methods: This cross-sectional study has been held for 3 years on all patients with BPH who have been admitted to the Urology Department of Sina Hospital from March 2009 to August 2012. A total number of 240 patients, ranging from 50 to 80 years old with BPH were enrolled in the study. Height, weight, BMI, fasting insulin level, prostate volume and serum PSA level and components of the metabolic syndrome including waist circumference measurement and TG, HDL, fasting blood sugar and blood pressure has been examined. The number of people with three or more components of the metabolic syndrome and the incidence of each component of metabolic syndrome and its possible association with prostate volume has been examined. Men with clinically proven metabolic syndrome but without presentation of BPH, set as control group. Results: The overall prevalence of metabolic syndrome in our patients was 57.5% (n=138) and the prevalence of each components were as follow: high fasting blood sugar 75.3%, high blood pressure 70.6%, Low HDL 44.7%, high TG 40% and waist circumference (over 94cm) 35.3%. The Prevalence of hyperinsulinemia was 9.4%. Significant Positive correlation between

prostate volume and BMI, weight, waist circumference and number of metabolic syndrome components ($P < 0.005$) was obtained. By placing the regression test of prostate volume as the dependent variable and controlling for age, height, weight and fasting insulin levels, significant positive linear relationship between metabolic syndrome ($P < 0.05$) and number of its components ($P < 0.05$) with prostate volume was obtained.

Conclusion: Our results suggest a high prevalence of metabolic syndrome in patients with BPH who were studied in our study. High fasting plasma glucose and hypertension presented as the most common components of metabolic syndrome among these patients. The increasing level of metabolic syndrome components (regardless of which component it is), and the presence of metabolic syndrome itself are risk factors for increased prostate volume among BPH patients.

UP.143

Transurethral Enucleation of the Prostate with Bipolar vs. Trans-Urethral Resection of the Prostate in Saline

Gamaleldeen A, Abdallah M, Badeldin M
Menoufia University Hospital,
Shibin Elkom, Egypt

Introduction and Objectives: The aim of the study is to evaluate the efficacy and safety of transurethral enucleation of the prostate with bipolar (TUEP) vs. transurethral resection of the prostate in saline (TURIS).

Materials and Methods: A retrospective review of Menoufia university Hospital experience of 60 patients suffering from benign prostatic hyperplasia with prostate volumes more than 60 gm. Twenty eight patients treated with transurethral enucleation of the prostate with bipolar (TUEP) and 32 treated with transurethral resection of the prostate in saline (TURIS). Preoperative assessment of all patients regarding prostate size, hemoglobin level, flowmetry and IPSS score was done, Perioperative assessment of resection time, changes in hemoglobin, tissue resected weight was done. Postoperative follow-up of all patients up to 12 months was done including IPSS score, flowmetry and late complications.

Results: Both groups were matched for age, preoperative prostate weight, IPSS score and uroflowmetry results. Patients underwent enucleation of the prostate showed significant less change in hemoglobin after surgery than patients with TURIS (1.21 vs. 1.8 g/dl; $P < 0.001$). No statistically significant difference between both groups regarding changes in IPSS score, Catheterization time, Hospital stay, late complications and Uroflowmetry results. The resection weight was statistically significant higher in Enucleation group (mean tissue weight TUEP vs. TURIS was 98.2 vs. 73.5 gm).

Conclusions: Transurethral enucleation of the prostate with bipolar is safe, economic and comparable to transurethral resection of prostate in saline. It has better results in resection tissue weight and less blood loss.

UP.144

Outcomes and Complications after Holmium Laser Enucleation of the Prostate in Anticoagulated Patients with Benign Prostatic Hyperplasia

Ichikawa T¹, Nishiyama Y², Kurashige T², Hayata S², Sako T¹, Yokoyama S¹, Shiotsuka Y¹, Yamamoto Y¹, Ishito N¹, Takamoto H¹

¹Kurashiki Medical Center, Kurashiki, Japan;

²Tottori Municipal Hospital, Tottori, Japan

Introduction and Objectives: Holmium laser enucleation of the prostate (HoLEP) is a less invasive procedure with excellent hemostatic properties. We evaluated outcomes and complications after HoLEP in anticoagulated patients with benign prostatic hyperplasia (BPH).

Materials and Methods: From July 2007 to October 2013, 578 patients with symptomatic BPH underwent HoLEP. Of these patients, 73 with a mean age of 76.2 years who were on chronic oral anticoagulation therapy underwent the surgery without oral anticoagulant withdrawal. These patients included 29 (39.7%) on aspirin, 14 (19.2%) on warfarin potassium, 4 (5.5%) on clopidogrel sulfate, 2 (2.7%) on ticlopidine hydrochloride, 4 (5.5%) on other anticoagulants, and 20 (27.4%) on 2 or more anticoagulants. Operation time, estimated blood loss, weight of enucleated tissue, catheterization time, and postoperative complications were evaluated. Peak urinary flow, post-void residual urine, International Prostate Symptom Score (IPSS), and quality of life score were also assessed before and after surgery.

Results: HoLEP was performed successfully in all patients. Mean operation time was 69.1 minutes (range 22 to 207), mean estimated blood loss was 75.6 ml (range 3 to 468), and mean weight of enucleated tissue was 21.9 g (range 0.5 to 102.5). Average catheterization time was 2.3 days (range 1 to 10). There were no major operative or postoperative complications, and no blood transfusions were required. Complications within 30 days included temporary urinary retention in 8 patients, urinary tract infection in 4, and delayed bleeding in 2. One of the two cases with bleeding required reoperation for hemostasis. After surgery, significant improvements were seen in peak urinary flow, post-void residual urine, IPSS, and quality of life score.

Conclusion: HoLEP is a safe and effective surgical modality for patients on anticoagulant therapy.

UP.145

Is the Residual Urine Volume after Uroflowmetry Compatible with Spot Residual Urine Volume?

Okcelik S, Soydan H, Ates F, Malkoc E, Yilmaz O, Karademir K

GATA Haydarpaşa Training Hospital, Uskudar, Istanbul, Turkey

Introduction and Objectives: To determine if residual volume after uroflowmetry with spot residual volume compatible.

Materials and Methods: We determined male patients with LUTS. Patients' age, PSA, prostate volume, spot residual volume, voided volume, maximum flow rate, average flow rate and the residual volume after uroflowmetry were recorded. If there is more than 50cc difference between the residual volume after uroflowmetry and spot residual volume, we accept they are incompatible. If lower than 50cc, we accept they are compatible. We divided the patients into three groups. Group 1: Patients whose residual volume after uroflowmetry compatible with spot residual volume. Group 2: Incompatible (Residual volume after uroflowmetry is higher than spot residual volume). Group 3: Incompatible (Spot residual volume is higher than residual volume after uroflowmetry). We compared these three groups.

Results: Seventy seven patients were assessed. Mean age was 66.63 (25-87), prostate volume was 48.69 (15-126) cc, voided volume was 242.39 (56-579) cc, Qmax was 13.15 (5-40) cc/sec, Qave was 6.41 (2-18) cc/sec, spot residual volume was 31.26 (0-250) cc, residual volume after uroflowmetry was 77.93 (0-350) cc. There was a significant difference between the residual volume after uroflowmetry and spot residual volume ($p=0.002$). When we determined the patients whose spot residual volume was lower than 50cc, mean age was 65.78, prostate volume 48.15cc, voided volume 254.68cc, Qmax 13.65cc/sec, Qave 6.78cc/sec, residual volume after uroflowmetry 67.43cc. When we determined the patients whose spot residual volume higher than 50cc, mean age was 69.31, prostate volume 51.75cc, voided volume 196.25cc, Qmax 11.12cc/sec, Qave 5.00cc/sec residual volume after uroflowmetry 108.44cc. P rates of age, prostate volume, residual volume, voided volume, Qmax and Qave was in turn 0.281, 0.445, 0.026, 0.060, 0.072, 0.034 (Mann-Whitney U test). We saw that there was no parameter that affects the spot residual volume (linear regression analysis). When we analysed the correlations, there was a negative correlation between spot residual volume and Qave ($r = -0.220$; $p=0.029$). When we compared the compatible group with incompatible group, there was a significant difference for prostate volume and voided volume between the groups.

Conclusion: Residual volume assessment is

more accurate if measurement is done momentary. Spot residual volume with residual volume after uroflowmetry much more incompatible if postate size and voided volume is higher.

UP.146

Urinary PSA: Specific Marker of BPH and BPH Progression

Pejic T¹, Acimovic M¹, Dzamic Z¹, Hadzi-Djokic J²

¹Clinical Center of Serbia, Clinic of Urology, Belgrade, Serbia; ²Serbian Academy for Sciences and Arts, Belgrade, Serbia

Introduction and Objectives: Urinary prostate specific antigen (uPSA) represents the specific marker of benign prostatic hyperplasia (BPH) and BPH progression.

Materials and Methods: From 2001 to 2011, uPSA was determined in 265 patients with benign prostate conditions. All the patients underwent the measurement of total prostate volume (TPV), PSA and uPSA. For the determination of uPSA, the patients collected the first 50 mL of the first morning urine. Within this group, 48 patients who were receiving alpha-blockers (αB) were followed-up during four years.

Results: In the whole group, the average patient's age was 64.9 ± 10.6 years, the average PSA was 2.19 ± 1.95 ng/mL, the average TPV was 37.03 ± 20.9 mL and the average uPSA was 190.4 ± 183.9 ng/mL. The patients with TPV < 31 mL had significantly lower uPSA (119.3 ± 124.5 ng/mL) than the patients with TPV ≥ 31 mL (255.5 ± 204.9 ng/mL), ($p < 0.0001$). In the group αB , after four years, the average increase of TPV, PSA and uPSA were 17.8%, 39.8% and 96.1%, respectively.

Conclusion: The level of uPSA can be used as additional marker of BPH and BPH progression.

UP.147

Day-Case Holmium Laser Enucleation of the Prostate (HoLEP) at Bedford Hospital: An Initial (Learning Curve Period) Experience

Alnajjar H, Patel H, Khan A, Sharma H, Chaudry A

Bedford Hospital NHS Trust, Bedford, UK

Introduction and Objectives: In June 2012, HoLEP was introduced as an alternative surgical treatment option for patients with bladder outflow obstruction secondary to benign prostatic enlargement (BPH) at Bedford Hospital. Patients, who deemed surgically and anaesthetically suitable, were offered day case HoLEP. Our objective was to assess the safety and efficacy of our new day-case HoLEP service at Bedford Hospital during the learning curve stage of the surgeon.

Materials and Methods: We carried a prospective case series study of all patients who underwent HoLEP from June 2012 to January 2014.

This period was considered as the surgeon's learning curve period. Patients with no anaesthetic concerns were offered day-case HoLEP. The following parameters were recorded prospectively; length of hospital stay, pre-operative and postoperative International Prostate Symptom Score (IPSS), prostate size (pre-op.), uroflowmetry and successful trial of voiding (TOV). Complications were also recorded.

Results: A total of 50 HoLEP's were performed in the time period. The mean age was 73.3 years. The average theatre time was 113 minutes. The average pre-op IPSS was 21, TRUS volume 80.6 mls (160-40), Qmax 8.3 ml/s, PVR 676 mls. Five patients had catheter *in-situ* pre-operatively due to urinary retention, 4 of whom passed their TWOC successfully. The average post-op IPSS was 5.8, Qmax 25.4 ml/s, PVR 75.7ml. Mean day of TWOC was 2.8 days and mean length of hospital stay of 0.84 days (21 day cases). Two patients developed bladder neck stenosis. None of the patients required blood transfusion.

Conclusion: HoLEP is a safe and efficacious bladder outflow surgery from our case series. Our complication rates were low, despite of the learning curve. In selected cases it can be managed safely as a day case procedure.

UP.148

Complications following TURP over an 18-Month Period at a Urological Tertiary Referral Centre Using the Clavien-Dindo Classification System

Stroman L, Ellis D, Tooley R, Mazaris E
St. Mary's Hospital, London, UK

Introduction and Objectives: Transurethral resection of the prostate (TURP) is still regarded as the gold standard for the treatment of lower urinary tract symptoms in patients with benign prostatic obstruction in prostates between 30 and 80 mL. Patients undergoing TURP are at risk of developing post-operative complications including bladder neck stenosis, urethral stricture, UTI, TUR syndrome and retrograde ejaculation. The Clavien-Dindo classification system is a standardised and validated tool designed around the level of management required to successfully manage the complication. This study aims to evaluate the rate and severity of post-operative complications of patients undergoing TURP in a urological tertiary referral centre over an 18-month period.

Materials and Methods: Data was analysed from all patients undergoing TURP at St Mary's Hospital, London from 1st May 2012 until 30th November 2013. Post-operative patient data was gathered using operative notes, inpatient notes, electronic discharge summaries, urology specialist nurse follow-up and urology clinic follow-up appointment documentation.

Results: Sixty-six men underwent TURP over an 18-month period. Mean age was 70 (range

52 – 87). No intraoperative complications took place. A total of 8 post-operative complications took place in 6 (9.5%) patients. Four patients suffered grade I Clavien-Dindo classification complications – urinary retention requiring fluids, failed trial without catheter and retrograde ejaculation (n=2). Three grade II complications were seen (UTI, epididymo-orchitis, LRTI) which required antibiotics. One patient suffered a grade III-b complication and required urethrotomy for post-operative stricture. No patients suffered grade IV or V complications.

Conclusions: TURP is safe and effective method on managing LUTS. Post-operative complication rates at St Mary's Hospital were relatively low when compared to literature.

UP.150

Daycase Laser Prostatectomy: Early Experience

Manley K, Banerjee S, Lipp A, Rochester M
Norfolk and Norwich University Hospital NHS Foundation Trust, Norwich, UK

Introduction and Objectives: Day case holmium laser enucleation of the prostate (HoLEP) has been previously described in the literature as a safe and efficacious management for small volume prostates. Performing HoLEP as a day-case procedure can confer significant benefits for patient satisfaction and reduced length of stay (LOS). The aim of this study was to review a new day-case service for HoLEP at a single centre where day-case procedures were performed regardless of prostate size, in order to compare results with those in the literature. Complications and outcomes were investigated, and reasons for increased length of stay (LOS) identified. In addition, a cost-effectiveness evaluation was performed.

Materials and Methods: All patients undergoing HoLEP over the first 14 months of a new day-case service at a single centre (September 2012 – December 2013) were included. Patients under 90 years old with no anaesthetic contraindications were listed as day-cases regardless of prostate size. LOS, specimen weight, reasons for failed discharges and 3-month post-operative IPSS scores were recorded, and a cost-effectiveness analysis of HoLEP vs. TURP performed.

Results: A total of 153 HoLEPs were performed in this period. Of those, 71.2% (n=109) were intended as day-cases. Median age was 70 years (range 44-89), mean specimen weight: 35.8g (range 1-190g), and mean surgical time: 57.9 min. Of intended day-case patients, 75% (n=81) were successfully discharged on the day of surgery. For unsuccessful day-cases, reasons for delayed discharge included: intraoperative factors: 21.4% (n=6); need for irrigation: 25% (n=7); outlying ward: 3.6% (n=1); medical/anaesthetic complications: 17.9% (n=5) and social factors: 25% (n=7). Readmission rate for successful day-cases was 4.9%. Mean IPSS score

at 3 months was 4.25 (range 0-17).

Conclusion: Day-case HoLEP is a feasible, safe and effective treatment regardless of age or prostate size, with satisfactory post-operative symptom scores. The results of this study compare favourably with those in the published literature in terms of readmission rates and complications. As day-case HoLEP attracts an enhanced tariff plus savings from reduced LOS, developing a day-case pathway for HoLEPs is financially appealing – in this case a saving of £22,195 over 109 cases. Ensuring adequate home-care post-discharge and a designated day-case patient pathway could improve day-case rates.

UP.151

How Minimally Invasive Is Trans-Urethral Needle Ablation of the Prostate?

Chakrabarty A¹, Gupta A²

¹*Urologic Clinics of North Alabama PC, Huntsville, USA;* ²*Dept. of Urology, VMMC and Safdarjang Hospital, New Delhi, India*

Introduction and Objectives: Transurethral resection of prostate (TURP) has been the gold standard for surgical treatment of BPH with LUTS. Alternative in-office, minimally invasive therapies (MIT) such as Trans Urethral Needle Ablation (TUNA) have emerged as less invasive options with acceptable efficacy. The present study focuses on the safety, tolerability and satisfaction with TUNA procedure and its efficacy in the short term.

Materials and Methods: From April 2012 to March 2013 all undergoing in-office TUNA procedure by a single surgeon were evaluated for intra and post procedure discomfort, as per Visual Analog Scale; short term outcomes as per improvements in the pre and post procedure AUA symptom score and Patient Global Impression of Improvement (PGI-I) after 3 months of the procedure; and for any complication, graded by the modified Clavien system. All procedures were done with local and regional anesthesia with light oral sedation as per the surgeon's protocol.

Results: There were a total of 36 patients with a mean age of 64.6 years. Follow-up ranged from 6 to 18 months (Mean 199.78±151.77 days). Three were lost to follow-up after a successful trial of void. The mean AUA score and quality of life index decreased from 18.72±5.89 to 6.09±5.40 and from 4.08±1.13 to 1.18±1.21 respectively (both p<0.001). The average duration of catheterization was 2.92±2.39 days with 11 patients not catheterized. The discomfort observed during and after surgery was 3.00±3.00 and 2.97±2.52 out of 10 respectively. Grade 1 complications were reported in 6 patients (16.67%) and grade 2 in 1 patient. Patients were very satisfied with the surgery (PGI-I scale 1.93±0.83), with 88.89% patients ready to undergo the same procedure again if

needed. Two patients underwent a Greenlight laser TUVF, 3 and 7 months post TUNA for continuing symptoms.

Conclusions: TUNA can be safely performed in-office with acceptable morbidity, efficacy and a high patient satisfaction rate. Majority of patients can defer a more invasive surgical option at least short term. Effective preoperative patient preparation and a successful local and regional block is important for patient satisfaction and tolerability. Long term follow-up is needed to assess the durability of efficacy.

UP.152

The Effect of Acetylsalicylic Acid on Postoperative Anaemia after Transurethral Resection of Prostate and the Impact of Bipolar versus Monopolar Resection on Postoperative Sodium Serum and Haemoglobin: A Prospective Single-Center Study

Goris Gbenou M, Khedime S, Mendes M, Rashed S, Combe M, Lopez J
Dept. of Urology, Centre Hospitalier de Valence, Valence, France

Introduction and Objectives: To evaluate the impact of low dose aspirin therapy on decline of postoperative hemoglobin in patients undergoing transurethral resection of prostate (TURP) and to compare the impact of two types of electrocoagulation in the decline of postoperative serum sodium and hemoglobin.

Materials and Methods: A single-center non-randomized study has been conducted in the department of urology of Valence Hospital between October 2012 and October 2013. Data from consecutive patients who underwent TURP for symptomatic BPH were collected prospectively. The inclusion criterion was: TURP for LUTS secondary to BPH and the exclusion criteria were palliative TURP for urinary retention in patients with prostate cancer and/or additional endoscopic surgery.

Results: A total of 104 patients were selected for the final analysis. Twenty-four patients (23%) did not discontinue their aspirin therapy because of cardiovascular comorbidities. The median age was 74 years \pm 9.68 (49-89). Forty one patients (39%) underwent bipolar TURP and 63 patients (61%) were treated by monopolar TURP. The mean preoperative Hb and the average postoperative Hb were respectively 13.93 and 12.36 g/dl ($p = 0.000$). The means preoperative versus postoperative Hb were 14.04 versus 12.74 g/dl for monopolar TURP and 13.82 versus 12.33 g/dl for bipolar TURP groups, respectively (NS). In sub-group analysis, the means preoperative versus postoperative serum Na were 139.40 versus 138.44 mmol/l for monopolar TURP and 138.44 versus 138.00 mmol/l for bipolar TURP groups, respectively (NS). The mean preoperative serum sodium and the mean postoperative serum sodium were respectively 139.53 and

137.48 mmol/L ($p = 0.000$). The mean postoperative Hb in patients who have been continued aspirin therapy and those who did not have anti-thrombotic treatment were respectively 11.71 and 12.86 g/dl ($p = 0.006$). There were 2 cases of clinically significant anaemia and 1 case of significant hyponatremia in the monopolar group in contrast of 1 case of TURP syndrome in bipolar group. In multivariable regression, postoperative anaemia was positively associated with a continuing aspirin therapy ($p = 0.034$), the low preoperative Hb (0.000) and the age over 65 years ($p = 0.008$). The postoperative hyponatremia was related only to low preoperative serum sodium ($p = 0.000$).

Conclusion: This study provides further evidence that men undergoing TURP for BPH have postoperative anaemia and hyponatremia. Aspirin is a risk factor for postoperative anaemia.

UP.153

Prognostic Factors of Low Urinary Flow Rate after Transurethral Resection of Prostate

Kim B, Ha J, Jung W, Park C, Kim C
Keimyung University, Daegu, South Korea

Introduction and Objectives: Transurethral resection of prostate (TURP) is the gold standard treatment of benign prostatic hyperplasia (BPH) and gives high satisfaction to patients. However, postoperative low urine flow is commonly observed. We analyzed patients' characteristics according to post TURP uroflowmetry.

Materials and Methods: From January 2006 to December 2012, 191 patients who underwent TURP in our hospital were included in this study. Their age, diabetes mellitus, hypertension, a history of stroke, prostate volume, preoperative prostate specific antigen (PSA), International Prostate Symptom Score (IPSS), preoperative medication period, a history of acute urinary retention (AUR), the volume of resected tissue were reviewed. Patients were divided into two groups by post TURP Qmax lesser than 10ml/s. More than five points of irritative symptom score and more than four points of obstructive symptom score were defined as dominant.

Results: The mean age of the patients was 71 years old. There were 122 cases (63.8%) of diabetes mellitus, 134 cases (70.1%) of hypertension, and 78 cases (40.8%) of stroke were noted. Median prostate volume was 57gm (4-130); median PSA was 12.1ng/ml (0.2-1320). Irritative symptom dominant cases were 47 (24.6%) and obstructive symptom dominant cases were 94 (49.2%). There were 103 cases (48.1%) that had BPH medication history over six months before surgery. Eighteen cases (9.4%) had acute urinary retention previously. The mean volume of resected tissue was 11.1gm. Thirty eight cases (19.9%) of the patients had post TURP Qmax lesser than 10ml/s. They were older ($p=0.040$), had diabetes mellitus ($p=0.042$), had dominant

irritative symptom score ($p<0.01$) and had no AUR history ($p=0.043$) in multivariate analysis. However, prostate volume, PSA, preoperative medication period, hypertension, stroke and volume of resected tissue were not related to post TURP Qmax lesser than 10ml/s.

Conclusion: The patients who had low urinary flow rate post TURP was 19.9%. We must be concerned about older age, diabetes mellitus, dominant irritative symptom score and history of acute urinary retention when planning TURP.

UP.154

Morbidity of Holmium Laser Enucleation of the Prostate (HoLEP) for the Treatment of Benign Prostatic Hyperplasia (BPH) Choi S

Kosin University Hospital, Busan, South Korea

Introduction and Objectives: To evaluate morbidity of HoLEP in 380 patients undergoing holmium laser enucleation of the prostate (HoLEP) at our institution.

Materials and Methods: The author analysed the patients' demographic, peri-operative and follow-up data, and the complications during and after surgery. All procedures of HoLEP were done by a single surgeon.

Results: The mean patient age at the surgery was 67.5 (45-85), and the mean PSA was 3.7 ng/ml (0.4-19.4). Mean operation time was 77.6 minutes (range, 30-180). Mean prostate volume was 64.3 ml (range, 20-192) and mean resected tissue weight was 12.3 g (range, 2-83), with 20 (5.3%) patients diagnosed with adenocarcinoma. Mean catheter indwelling time was 2.7 day (1-6), and mean hospital stay was 3.2 day (1-7). The blood loss was minimal, only two patients (0.5%) required postoperative transfusions. No deaths, major complications (myocardial infarction or pulmonary embolism) or TUR syndrome episodes occurred. Intraoperative complication was minor capsular perforation ($n=5$, 1.3%). Postoperative complications were acute urinary retention ($n=9$, 2.4%), transient incontinence ($n=17$, 4.4%), urinary tract infection ($n=6$, 1.5%), urethral stricture ($n=4$, 1.0%) and bladder neck contraction ($n=18$, 4.7%).

Conclusion: HoLEP can be performed with minimal complication risks and blood loss.

UP.155

Bipolar Transurethral Resection of the Prostate: Is Blood Grouping Required? Goonewardene S¹, Dickinson A²

¹Homerton University Hospital, London, UK;

²Plymouth Hospitals, Plymouth, UK

Introduction and Objectives: Transurethral resection of the prostate (TURP) is the most common surgical treatment for benign prostatic hyperplasia (BPH) worldwide. Bipolar TURP has advantages such as shorter catheter indwelling times and hospital stays, and fewer bleeding

episodes without any risk of transurethral resection syndrome. We aim to analyse whether blood grouping is required for this surgery pre-procedure.

Materials and Methods: A retrospective audit of patient information was conducted, for 100 patients admitted under a single surgeon for bipolar TURP over three years. Details on demographics, surgical procedure, pre- and post-operative haematology, blood product ordering and usage were collected for patients admitted over a one year period. Results were analysed via percentages.

Results: Average was 74.8 years (range 52-92 years). A total of 96.4% of patients had complete resection of the gland; 100% had bipolar resection with complete haemostasis achieved post op; 12.7% had a high bleeding risk (on warfarin). One hundred percent were grouped and saved, but none required transfusion and no units were crossmatched. Transfusion index was 0 as was crossmatched to transfusion ratio. The average haemoglobin drop is 1.4. Average pre-operative INR 1.0, (range 1.1-2.7). Average length of stay was 2.4 days (range 1-5). Complications: UTI 5.4%, clots 5.4%.

Conclusions: We conclude pre-operative G+S is not required for bipolar TURP. We compare our results with other published data.

UP.156

Effect of Holmium Laser Enucleation of Prostate on Nocturia

Oh T¹, Kwak K¹, Ryu D¹, Bae Y², Choi S³
¹Samsung Changwon Hospital Sungkyunkwan University, Changwon, South Korea; ²Ulsan Jeil Hospital, Ulsan, South Korea; ³Kosin University Gospel Hospital, Busan, South Korea

Introduction and Objectives: Nocturia is one of the most bothersome symptoms and the main predictors of symptoms in benign prostatic hyperplasia (BPH) patients with lower urinary tract symptoms (LUTS). We evaluated the change of nocturia and predictive factors for improvement after Holmium laser enucleation of Prostate (HoLEP) as the treatment of BPH.

Materials and Methods: A total 102 patients who underwent HoLEP for BPH between April 2010 and July 2013 were included in this retrospective study. All of them had the baseline and postoperative (6 weeks after HoLEP) International Prostate Symptom Score (IPSS), 3-day frequency-volume chart (FVC), and flowmetry. The efficacy of HoLEP was evaluated at 6 weeks postoperatively by use of IPSS and FVC. Improvement in nocturia was defined as a reduction of $\geq 50\%$ in nocturia frequency compared with baseline.

Results: The median of total prostate volume, Prostate specific antigen (PSA), enucleation weight and enucleation ratio (enucleation weight/transitional zone volume) were 56.6ml (transitional zone: 33ml), 4.0ng/ml, 27gm, and

0.82gm/ml, respectively. All of them had at least 1 episode of nocturia and 88 men (86.3%) had 2 or more nocturia episode at baseline. Nocturia was significantly decreased from a baseline median of 4 to 2 episode at 6 weeks after HoLEP and improvement of nocturia was shown in 84 (82.4%) men. Of the baseline parameters, including age, total prostate volume, baseline IPSS and nocturia frequency and enucleation ratio, higher baseline nocturia frequency was associated with improvement of nocturia.

Conclusion: HoLEP for BPH significantly reduced nocturia in early postoperative period. The baseline nocturia frequency influenced improvement in nocturia.

UP.157

Intratriganal Botulinum Toxin-A in Refractory Patients of Painful Bladder Syndrome/IC

Shimpi R

Div. of Urology, Uro-Andrology Clinic, Pune, India

Introduction and Objectives: PBS/IC is a distressing, chronic, severely debilitating disease characterized by urinary frequency and pelvic pain in absence of obvious bladder pathology. An increased number of nociceptive sensory fibre receptor populations in the trigone have been shown in these patients. Botulinum Toxin-A (Botox) was shown to have analgesic properties (by blocking these nociceptors) apart from the Detrusor muscle paralysis. The main objective is to assess the impact, efficiency, tolerability of Intra-trigonal injection of Botox upon bladder pain, urinary symptoms in PBS/IC patients who are refractory to Intravesical therapy and PPS.

Materials and Methods: Eleven patients in the age group of 32-50 with a mean of 48 years of PBS/IC treated between January 2009 and March 2011 are included in the present study. Clinical evaluation, laboratory evaluation has been done to rule out other bladder diseases. Baseline Cystometry was done in all the patients. 200 IU Botulinum Toxin diluted in 20 ml Normal saline was injected at 20 sites in the trigone excluding the orifices using a rigid, flexible cystoscope on OPD basis and were discharged with antibiotic prophylaxis. All the patients were followed-up at 1, 3, 6 months.

Results: All patients reported subjective improvement in the bladder symptoms. Urinary frequency decreased from 16.2 ± 4.1 to 7.9 ± 6.2 at 3 months and 9.4 ± 2.2 at 6 months follow-up. Bladder volume for the pain increased from 40 ± 20 ml at baseline to 120 ± 28 ml at 3 months or 130 ± 32 ml at 6 months. The maximum cystometric capacity increased from 90 ± 35 ml to 270 ± 50 ml at 3 months and 325 ± 85 ml at 6 months. After 10 months, 2 patients showed worsening of the symptoms

and on their request, patients were given re-injection of 200 IU Botox. One patient had a large PVR necessitating CIC once a day and the clinical improvement was for the mean duration of 10.6 months.

Conclusion: Intratriganal injection of 200 IU Botox is safer, effective and relieves most of the distressing symptoms of PBS/IC, and can last for a mean of 10.6 months.

UP.159

What after Flexible Cystoscopy Guided Catheterization in Difficult Cases? One-Year Audit

Fung D, El Hassan R, Dixon S, Menezes P
 Sunderland Royal Hospital, Tyne and Wear, UK

Introduction and Objectives: An increasing number of patients are discharged from geriatric medical wards with indwelling urethral catheter. Some routine catheter changes are unsuccessful requiring flexible cystoscopy guided change. The objective of this study was to determine what should be the ideal subsequent method of catheter change.

Materials and Methods: In this retrospective study, consecutive patients were identified in whom a change of catheter in the community had failed and required flexible cystoscopic guided catheterization in our unit for a one-year period from January 2012. Their case notes and electronic records were examined to establish how many of these patients were re-referred to our unit with further failed catheterization requiring cystoscopic guided catheter changes.

Results: Fifteen male patients were identified to have cystoscopic guided catheter insertions. Ten (67%) catheters were initially placed for bladder outflow obstruction, 3 (20%) for neuropathic bladder and 2 (13%) as per specific post procedure indications. At the next catheter change, 7 (47%) were successful in the community; of these, 5 had bladder outflow obstruction and 2 had neuropathic bladder. Eight (53%) patients required cystoscopic guidance; of these, 5 had bladder outflow obstruction, 1 had neuropathic bladder and 2 were post procedure.

Conclusion: With the ageing population, an increasing number of patients are discharged from geriatric medical wards with a long-term urethral catheter, which requires regular change. Sometimes catheter changes require flexible cystoscopy guided catheter changes. In our audit, more than 50% required further cystoscopic guided changes; but they were all subjected to a distressing trial of change in the community. We should be offering better services to these patients by arranging routine flexible cystoscopy guided catheter changes, which would minimize distressing catheter attempts in the community. However, currently, without further research and audit, we are unable to select candidates who may benefit from regular cystoscopic change of catheter.

Perhaps the concept of 'catheter passport' for every patient with a catheter in the community should be widely adopted. This may go a long way in understanding the magnitude of associated problems.

UP.160

Efficacy of Holmium Laser Enucleation of Prostate according to Preoperative Patients' Characteristics: Prostate Size, Bladder Outlet Obstruction, Detrusor Overactivity and Detrusor Contractility

Ryoo H, Shin S, Sung H, Jeong J, Lee K
Sungkyunkwan University, Seoul, South Korea

Introduction and Objectives: Holmium Laser Enucleation of the Prostate (HoLEP) has been one of the standard therapy for surgical relief of benign prostatic obstruction. We evaluate the efficacy of HoLEP according to prostate size, bladder outlet obstruction (BOO), detrusor overactivity (DO), detrusor contractility and evaluate the factors influencing to success of HoLEP.

Materials and Methods: Patients that underwent HoLEP from 2009 to 2013 and completed a postoperative follow-up at least 6 months were included. Of these, medical records of 174 patients were reviewed. Preoperative evaluation included PSA, prostatic size, urodynamic study, and International Prostate Symptom Score (IPSS)/QoL. At postoperative 6 months, surgical outcome was evaluated with IPSS/QoL, maximum flow rate (Qmax) and post void residual urine (PVR). Based from estimation criteria suggested by Homma, treatment was considered successful if median value of efficacy score demonstrates more than 2. Patients were analyzed by prostate size (< 40ml, 40-80 ml, ≥ 80ml), BOOI (< 40, ≥ 40) DO (present or not), and BCI (< 100, ≥ 100). Multiple logistic regression analysis was used to find the predictors of success of HoLEP.

Results: The patients' mean age was 69.3 years. Preoperative Qmax was significantly low and PVR was high in the groups of BOOI ≥ 40. All parameters showed significant improvement at postoperative 6 months (IPSS; 21.7±6.6 to 6.8±5.2, QoL; 4.5±2.4 to 1.7±1.3, Qmax; 8.7±3.8 to 24.1±35.1, PVR; 107.7±111.0 to 25.6±24.3). Improvement of IPSS and PVR was more significant in a group of BOOI ≥ 40 compared to group of BOOI < 40. The overall success rate was 93.7%. Factors to predict success of HoLEP were degree of BOO and PdetQmax in univariate analysis and degree of BOO in multivariate analysis.

Conclusion: HoLEP improved LUTS and urine flow in most of the patients with BPO, irrespective of the pre-operative urodynamic and prostate size parameters. But, surgical outcome was more significant in patients with higher degree of BOO. These results will be useful to predict the effectiveness of HoLEP.

UP.161

One-Day Surgery in the Treatment of Benign Prostatic Enlargement with Thulium Laser: A Single Institution Experience

Carmignani L, Macchi A, Ani Bani M, Marengi C, Ratti D, Finkelberg E, Bozzini G, Casellato S, Maruccia S, Picozzi S
Dept. of Urology, IRCCS Policlinico San Donato, Milano, Italy

Introduction and Objectives: Recently, different articles deal with the introduction of new surgical laser therapy for enlarge prostate gland causing obstructive symptoms. The objective of this study was to report the feasibility of performing in a one-day surgery the endoscopic surgical treatments for benign prostatic obstruction with the ThuLEP procedure.

Materials and Methods: From September 2011 to September 2013, we start a prospective study on patients who underwent ThuLEP in a one-day surgery. Perioperatively the primary outcomes measured included operative time, resected tissue weight, hemoglobin decrease, transfusion rate, postoperative irrigation and catheterization time, and postoperative hospital stay. Also the preoperative and post-operative IPSS score and an uroflowmetry performed at the 7th and 30th post-operative days were recorded. All perioperative and postoperative complications were monitored.

Results: Fifty three patients performed the surgical treatment in one-day surgery. Seven patients continued anti-aggregant therapy with aspirin. Mean preoperative prostatic adenoma volume was 56.6 mL. Mean operative time was 71 min. The average catheter-time was respectively of 14.8 hours. The 7th day peak urinary flow rate improved from 9.3 to 17.42 ml/s ($P < 0.001$) and IPSS from 18 to 10.2 ($P < 0.01$). Patients were routinely discharged the same day of catheter removal. Complications were not recorded.

Conclusion: ThuLEP can be conducted safely as a one-day surgery procedure. This strategy results cost saving. ThuLEP shows a good standard outcomes considering flow parameters improvement, length of bladder catheterization.

UP.162

Holmium Laser Enucleation of the Prostate: The First 100 Cases, Experience of a Single Center

Claici D
Center for Urology and Laser Timisoara, Timisoara, Romania

Introduction and Objectives: Holmium laser enucleation of the prostate HoLEP is the most rigorously studied current option for the surgical management of the Benign Prostatic Hyperplasia (BPH). In randomized controlled trials it has been compared with TURP, open simple prostatectomy and photoselective vaporization of the prostate, and in all studies it has been found to be associated with superior outcomes

– Lingeman 2011. We present the experience of a single center and a single surgeon with the first 100 cases of HoLEP.

Materials and Methods: We have acquired a Versapulse Holmium 100 W laser in June 2010. We subsequently started HoLEP for BPH and our 100th patient was treated in July 2013. All the procedures were performed by one consultant urologist. Efficiency of the procedure increased steadily from the first 20 cases to the last ones from 0.5gr/minute of tissue enucleated to 1-1.1 grams/minute. Consecutively the operating time decreased and the weight of tissue enucleated and morcellated increased. The largest amount of prostatic tissue that we have extracted was 147.9 grams, and the longest time for surgery was 3hrs and 45 minutes. The technique that I have used started with a classic three lobes approach and evolved to a two lobes approach after the first 25 cases or so. The two lobes technique allows for a swifter and quicker result while the three lobes technique is useful when confronted with a large median lobe. There were two patients in their 80-ties for which the entire procedure consisted of enucleating only the median lobe. The most challenging part was keeping the same plane of dissection, especially in the large glands.

Results: Postoperatively the main complain that we had encountered was represented by the storage symptoms mainly the urgency. We have treated those patients with antimuscarinic agents and lately with β3 adrenergic agonists. Stress incontinence was less bothersome – only 2 of the 100 patients complained of it. Three patients required additional urethral catheterization for failure to void two-three weeks after the procedure. The catheter was not left in place. We did not encounter any major intraoperative incident, nor did any of the patients need blood transfusions. The blood loss was minimal. A majority of the procedure were performed as one day surgery with the patients leaving the premises the same day.

Conclusion: HoLEP is a very safe and efficient surgical treatment for BPH. The initial investment is considerable and the learning curve is steep. Though, in my opinion, it can and probably will become the next "golden standard" of prostate surgery. A proper selection of the cases would help, with smaller glands in the beginning. Also a particular care should be given to keeping the same plane of dissection, especially at the apex. Lowering the laser output there would also reduce the postoperative urgency, which could be bothering.

UP.164

Holmium Laser Enucleation of the Prostate for Prostates ≥80 mL

Birring A, West A, Gowda B
James Cook University Hospital, Middlesbrough, UK

Introduction and Objectives: To examine the subgroup of patients treated with holmium laser enucleation of the prostate (HoLEP) for bladder outlet obstruction due to larger prostates (≥ 80 mL).

Materials and Methods: We analysed retrospectively all men with prostates 80 mL and over, who underwent HoLEP between February 2010 and October 2013.

Results: Out of a total of 213 HoLEP procedures, 86 patients were identified. The mean (range) age was 73 (57-87) years and the mean estimated prostate volume on transrectal ultrasound was 127 (80-300) mL. The most common indication for surgery was urinary retention in 53 patients (62%). Five patients had previously had a TURP with 1 also having a previous Greenlight laser prostatectomy. The mean operative duration was 116 mins (75-195), and mean enucleated tissue weight was 75g (23-179). There was complete enucleation of all lobes in 47 (55%) patients with the remaining 39 patients (45%) having the median (if present) and the larger of the two lateral lobes enucleated. Continuous bladder irrigation overnight was required in 11 patients (18%) post operatively. One patient required blood transfusion in the early postoperative period for persistent haematuria. Mean catheterization time was 22 hours (10-56), with a mean hospital stay of 1.3 (1-6) days. Three patients failed the initial trial of voiding; all patients were ultimately able to void following surgery and remain catheter-free. Among the early complications were epididymo-orchitis (3.5%), urinary tract infection (4.7%) and delayed haematuria (3.5%). Temporary postoperative stress urinary incontinence occurred in 4 patients (4.6%) and resolved in all by 6 to 8 weeks. Permanent stress urinary incontinence occurred in one patient (1.2%; 0.5% of total). Significant improvements were seen in patient symptom scores and voiding outcome parameters at early follow-up.

Conclusion: HoLEP can be performed on patients with very large prostates with acceptable morbidity, regardless of the indication for surgery. It is a particularly safe and effective treatment for men with larger prostates who present with urinary retention and may be the ideal surgical treatment modality for this subgroup.

UP165

The Use of the 180W XPS 'GreenLight' Laser in the Management of Troublesome Lower Urinary Tract Symptoms and Urinary Retention in Men with Prostate Cancer
Jones J, Laird A, Lingard J, Riddick A, Cuttress M, Phipps S
Dept. of Urology, NHS Lothian, Western General Hospital, Edinburgh, UK

Introduction and Objectives: Despite considerable evidence supporting the use of 'Greenlight' Laser Prostatectomy (GLL) in men with benign prostatic hypertrophy (BPH), few

reports exist of the use of 80W/120W GLL in men with prostate cancer, and none of the 180W XPS-GLL in this setting. Epidemiological studies illustrate 10% of men with prostate cancer will undergo transurethral resection of prostate (TURP) and experience poor functional outcomes, with high rates of treatment failure and incontinence. We reviewed the use of 180W XPS-GLL in men with prostate cancer in our institution to determine safety and efficacy.

Materials and Methods: From a prospectively maintained database, patients with diagnosed prostate cancer undergoing XPS-GLL between October 2010-2013 were identified. Notes were reviewed retrospectively for age, PSA, presenting symptoms, oncological management, IPSS/QOL scores, intraoperative details, complications and outcomes.

Results: A total of 38 patients were identified with a mean age of 74 years (53-89 years) and PSA of 16.5 (0.1-89). Sixteen (42.1%) patients presented with refractory urinary retention. Eight patients had previously undergone bladder-outflow surgery. The mean lasting time was 15:08 minutes and energy 114,331kJ, with all patients routinely catheterised post-procedure. Thirty two men underwent trial without catheter within 24 hours and initial success rate was 86.8%. Thirty-day complication rate was 18.4% (3 urinary-tract infections, 3 haematuria which did not require intervention and 1 pulmonary embolus in a patient with hormone refractory prostate cancer). Minimum follow-up was 6 months (6-34 months, median 24 months) and 89% of men remain catheter free. Six patients developed bladder-neck stenosis and 1 developed a urethral stricture, of which 6/7 had received radiotherapy. Two of these same patients later developed stress incontinence. Seven patients (18.4%) have undergone secondary procedures: 1 patient underwent a further TURP, 6 underwent bladder-neck incisions and 2 await assessment for artificial urinary sphincter.

Conclusions: To our knowledge, this is one of the first reported series of the use of 180W XPS-GLL in this setting and we have shown it to be effective at treating urinary retention and lower urinary tract symptoms in men with prostate cancer. As well short catheterisation and hospitalisation times, it has a favourable safety profile and is therefore an excellent alternative to 'channel' TURP.

UP167

Holmium Laser Enucleation of the Prostate versus Laparoscopic Retropubic Simple Prostatectomy in Large Benign Prostatic Hyperplasia
Kim T¹, Lee K¹, Lee W², Cho W¹

¹Dong-A University, Busan, South Korea;

²DIRAMS, Busan, South Korea

Introduction and Objectives: To evaluate the feasibility of laparoscopic retropubic simple

prostatectomy (LRsP) by comparison with holmium laser enucleation (HoLEP) in cases of large prostate with regard to surgical efficacy and peri-operative outcomes.

Materials and Methods: A total of 23 benign prostatic hyperplasia (BPH) patients with prostate volume > 100 g, maximum flow rate (Qmax)<10 mL/s and international Prostate Symptom Score (IPSS) > 15 were randomized in the two study arms. Fourteen patients were performed by HoLEP and 9 by LRsP. All cases were assessed preoperatively and at 1, 3, 6 months after surgery by IPSS, Qmax, quality of life score (QoL) and post-voiding residual urinary volume (PVR). The prostate volume and prostatic specific antigen (PSA) level were measured at 6 month.

Results: There was no significant difference between the HoLEP and LRsP groups in patient age (70.2 years HoLEP vs. 72.4 years LRsP), prostate volume (108 cc vs. 112 cc), and weight of resected tissue (98 g vs. 102 g). There were significant differences in the mean operative time (188 vs. 126 minutes; P<0.001). Both surgical techniques resulted in postoperative improvement in symptom scores, peak urinary flow rate, and postvoiding residual volume (P<0.001). Blood transfusions were required in 0 HoLEP patients vs. 2 LRsP patients.

Conclusion: Both of HoLEP and LRsP were safe in large benign prostatic hyperplasia. LRsP entails significantly less operative time. The perioperative outcomes were not significant differences except blood transfusion rate.

UP168

The Comparison of Intra-Operative Parameters between Modified Enucleation Technique and Three Lobe Technique of Holmium Laser Enucleation of the Prostate
Oh J, Kim T, Kim K, Chung K, Lee H, Kim C, Kim K, Jung H, Yoon S
Gachon University, Incheon, South Korea

Introduction and Objectives: Holmium laser enucleation of the prostate (HoLEP) has been known as a potentially new gold standard for treating benign prostatic hyperplasia (BPH). Recently, modified enucleation technique was introduced to facilitate learning HoLEP more easily than traditional three lobe enucleation technique. Our study is designed to assess the intra-operative feasibility of modified enucleation technique comparing three lobe technique.

Materials and Methods: We retrospectively reviewed consecutive patients' data who underwent HoLEP by two surgeons (TBK & JKO) from 2012 to 2014. Group 1 consisted of patients who underwent HoLEP using modified enucleation technique to manage BPH by a single surgeon (TBK). Group 2 consisted of patients who were performed HoLEP using three lobe technique by a single surgeon (JKO). We compared intraoperative parameters such as enucleation weight, enucleation time and

morcellation time and enucleated weight per enucleation time between two groups.

Results: A total of 158 patients were enrolled in this study (Group 1 = 60, Group 2 = 98). Between Group 1 and 2, mean age (\pm SD) was 68.52 (\pm 6.20) and 68.06 (\pm 9.40) years, respectively ($p=0.714$). Mean enucleated weight was 24.19 (\pm 20.67) and 19.71 (\pm 17.60) g ($p=0.165$). Group 1 showed significantly more enucleated weight per enucleation time than Group 2 (0.59 (\pm 0.33) vs. 0.40 (\pm 0.25) g/min ($p<0.001$). However, there were no significant differences in enucleated weight per morcellation time between the two groups (2.37 (\pm 1.32) vs. 2.53 (\pm 2.08) g/min) ($p=0.595$).

Conclusion: Modified enucleation technique showed more efficient enucleation than previous three lobe technique, intraoperatively. However, long-term follow-up should be considered to assess the feasibility of modified technique for comparing post-operative outcomes between two techniques.

UP.169

Botulinum Toxin A Treatment Outcome of Interstitial Cystitis: 1-Year Follow-Up

Maeda Y, Hashimoto Y

Tokyo Women's Medical University Aoyama Hospital, Tokyo, Japan

Introduction and Objectives: In Europe and the United States, botulinum toxin type A (BTX-A) is approved to treat conditions like chronic migraine, excessive sweating, muscles spasms. BTX-A is currently being used in a number of urological conditions such as neurologic bladder, over active bladder and interstitial cystitis (IC). This study was designed to assess the efficacy of intravesical BTX-A in IC.

Materials and Methods: Patients were evaluated with Interstitial Cystitis Symptom Index (ICSI) and Problem Index (ICPI), Quality of life (QOL), Visual analog scale (VAS) 1, 3, 6, 9 and 12 months post operatively. Statistical analysis was performed using the Student *t* test, in which $P<0.05$ was considered statistically significant. BTX-A injection was performed 13 times for 11 patients. 100 U of Botox® (Allergan, Irvine, Calif, USA) was diluted in 10 ml 0.9% NaCl. Under local anesthesia and sedation, BTX-A was injected through a flexible cystoscope into 10–20 sites in the trigone and floor of bladder.

Results: The median patient age was 69 years (range 47 to 79). The study involved ten females and one male patient with IC. All were refractory to treatments and had symptoms that were severe enough. Every score was reduced after the treatment compared to before. ICSI, ICPI and QOL were improved statistically significant.

Conclusion: We injected BTX-A into the bladder wall for the treatment of intractable IC, which was safe and improved in symptoms of IC.

UP.170

Is Bipolar Transurethral Resection of Prostate Causing Less Delay Haematuria?

Ng C¹, Yee C¹, Chan C¹, Lee W¹, Tsui J², Teoh J¹, Wong J¹, Hou S¹

¹The Chinese University of Hong Kong, Hong Kong, China; ²University of Hong Kong, Hong Kong, China

Introduction and Objectives: Bipolar resection of prostate has gained its popularity among urologists due to its potential benefit of less TUR syndrome and also intra-operative bleeding. However, the effect of the technique on delayed haematuria after transurethral resection of prostate (TURP) was uncertain. Therefore, we would like to investigate the use of bipolar technique on delayed haematuria in a group of patients who underwent TURP by different approaches.

Materials and Methods: This was a retrospective study of 374 patients who had TURP in our institutes from June 2010 to August 2013. We defined delayed haematuria as any haematuria where the patient needed to seek medical advice. The patients received either one of the following 4 approaches of TURP (Group): (1) monopolar, (2) pure bipolar resection, (3) combined bipolar resection and vapourization, and (4) pure bipolar vapourization. The TURis® system (Olympus) was used for all bipolar procedures. Logistic regression analysis was used to identify predicting factors for delayed haematuria. Potential factors assessed include, age, prostate size, pre-operative PSA level, usage of antiplatelet / anticoagulation, usage of 5-alpha reductase inhibitors, surgical approaches etc.

Results: During the study period, the number of patients in the 4 groups was, 57 (15.2%), 153 (40.9%), 100 (26.7%) and 64 (17.2%) respectively. Except for younger patients' age in Group 1 and 4, other baseline parameters for the four groups were comparable. A total of 77 patients (20.6%) had delayed haematuria (presented from 1 week to 3 months) after discharged from hospital. The incidences of DH for the 4 Groups were 5 (8.8%), 34 (22.4%), 27 (27%) and 13 (20.3%) respectively. Logistic regression showed younger patient age (OR 0.95, 0.91-0.99) patient on antiplatelet / anticoagulation (OR 2.98, 1.33-6.66), TURP performed by pure bipolar resection (OR 4.53, 1.53-13.45) and combined bipolar resection with vapourization (OR 3.72, 1.25-11.04) had statistically higher chance of having delayed haematuria. However, pure vapourization, when compared to monopolar resection, was not associated with increase in delayed haematuria.

Conclusions: Bipolar resection, with or without vapourization, was associated with higher chance of delayed haematuria after TURP. However, bipolar vapourization alone was not associated with increase in the complication.

UP.171

Short Stay Transurethral Prostate Surgery: A Randomized Controlled Trial Comparing Bipolar Transurethral Vaporization of Prostate with Monopolar Transurethral Resection

Ng C¹, Yee C¹, Lee W¹, Wong J¹, Chan C¹, Tsui J², Teoh J¹, Hou S¹

¹The Chinese University of Hong Kong, Hong Kong, China; ²University of Hong Kong, Hong Kong, China

Introduction and Objectives: Transurethral resection in saline (TURis) bipolar vaporization of prostate is one of the major advances in surgical management of BPE. Our objective is to establish the safety and efficacy profiles of this technique compared with monopolar TURP, and to test the hospital stay efficiency of TURis vaporization.

Materials and Methods: It is a multi-center, double-blinded, prospective, randomized controlled trial. Men aged 50 to 75 years old were randomized into 2 arms: TURis bipolar vaporization and monopolar TURP. Intra-operative details, peri-operative parameters and post-operative functional outcomes were assessed after intervention. Only the surgeon in operating theatre and the person involved in randomization were aware of the type of surgery given. Follow-up with symptom score assessment, prostate volume measurement and uroflowmetry were performed at 3 months and 6 months.

Results: A total of 84 patients were randomized into each study arm with a mean age of 65.0 \pm 5.6 years. TURis bipolar vaporization had a longer operative time than monopolar TURP (51.6 \pm 24.5 mins versus 38.5 \pm 20.3 mins; $p<0.001$). Post-operatively, TURis group achieved a shorter catheter time (33.6 \pm 23.7 hours versus 40.8 \pm 29.4 hours, $p=0.013$) and a shorter length of hospital stay (43.14 \pm 18.79 hours versus 52.33 \pm 30.58 hours, $p=0.013$). Post-operative dysuria score was higher in the TURis vaporization arm. There was no statistically significant difference between the 2 arms in terms of haemoglobin change and post-operative complication. No significant difference was observed in quality of life score and uroflowmetry at 3 months and 6 months.

Conclusions: TURis bipolar vaporization of prostate is a safe and comparable alternative to monopolar TURP. It leads to a reduction in catheter time and a reduction in the length of hospital stay. A longer follow-up is required for a more comprehensive assessment.

UP.173

European Registry Evaluating Management Practices of General Practitioners and Urologists and Pharmacological Treatment Outcomes in Patients with Lower Urinary Tract Symptoms Associated with Benign Prostatic Hyperplasia

Tubaro A¹, Berges R², Speakman M³, de la

Taille A⁴, Martínez-Piñeiro L⁵, Patel A⁶, Caris C⁶, Witjes W⁶

¹*Sant' Andrea Hospital, Rome, Italy;* ²*Pan Klinik, Cologne, Germany;* ³*Taunton and Somerset Hospital, Taunton, UK;* ⁴*CHU Henri-Mondor, Creteil, France;* ⁵*Hospital Infanta Sofia, Madrid, Spain;* ⁶*EAU Research Foundation, Arnhem, The Netherlands*

Introduction and Objectives: Information on pharmacological management practices and outcomes in patients with LUTS/BPH treated in real-life is sparse. We collected data from 2175 males treated for their LUTS/BPH and evaluated its effects on symptoms, quality of life and sexual function.

Materials and Methods: Between February'10 and April'11, 2175 males, aged ≥ 50 years, were enrolled in 5 countries by GP's and urologists. Among those, 337 patients were not evaluable mainly because of missing questionnaires (8%); no pharmacological treatment (40%) or ineligibility (44%). A total of 575 untreated patients (UG) with an IPSS ≥ 8 and 1263 treated patients (TG) commenced pharmacological treatment and were allowed to stop or change the type of treatment. Visits took place at 6 (UG only), 12 and 24 months. Patients completed self-assessment questionnaires. The primary objective was to evaluate symptom persistence defined as IPSS ≥ 8 at 2 years.

Results: Patients in the UG and TGs started with the following treatments: 393 (68%) and 791 (63%) alpha-blockers; 91 (16%) and 66 (5%) phytotherapeutics; 21 (4%) and 88 (7%) 5-ARI inhibitors; 45 (8%) and 222 (18%) alpha-blockers combined with 5-ARI inhibitors, respectively (Table 1). The proportion of patients with symptom persistence decreased in both groups during the registry period as follows: BL; M12; and M24: Treated: 0.77

(95%CI:0.75–0.80); 0.64 (95%CI:0.61–0.67) and 0.62 (95%CI:0.58–0.65), respectively; Untreated: 1.0; 0.67 (95%CI:0.62–0.71) and 0.59 (95%CI:0.54–0.64), respectively. The 95%CI for the proportions of patients with clinical progression at M12 (Treated:0.10[95%CI:0.09–0.12]; Untreated:0.13[95%CI:0.11–0.16]) and M24 (Treated:0.17[95%CI:0.15–0.19]; Untreated:0.16[95%CI:0.13–0.19]) were clearly overlapping and thus not significantly different between initial treatment categories. In UK, the proportion of patients with clinical progression was higher than in other countries.

Conclusion: The quick decrease in proportions of patients with symptom persistence is due to a positive treatment effect while at longer term the continuing decrease may be due to continuous improvement of LUTS of men on treatment or selection bias of non-responders dropping out or undergoing surgical treatment.

UP:174

Transurethral Injection of Botulinum A Toxin for the Management of Neurogenic Detrusor External Sphincter Dyssynergia

Lu S¹, Lin A², Cheng H²

¹*Dept. of Urology, Taipei City Hospital and National Yang-Ming University, Taipei, Taiwan;*

²*Dept. of Urology, Taipei Veterans General Hospital and National Yang-Ming University, Taipei, Taiwan*

Introduction and Objectives: We investigated the effectiveness of transurethral injection of botulinum A toxin as a treatment for the patients with neurogenic detrusor-external sphincter dyssynergia.

Materials and Methods: The patients with neurogenic detrusor-external sphincter dyssynergia were treated with transurethral injection

of botulinum A toxin. A validated questionnaire and video-urodynamic study for the evaluation of the voiding condition of the patients were made at the time-points of pre-treatment, 2 weeks and 3 months after injection. International prostate symptom score (IPSS), Quality of life (QOL), cystometric capacity, postvoid residual (PVR) and detrusor leak-point pressure (DLPP) were evaluated.

Results: Post-operatively, IPSS decreased by 8.14% at 3 months as compared with the pre-treatment status; but there was no significant change of IPSS at 2 weeks; QOL decreased by 18.08% at 3 months and decreased by 9.62% at 2 weeks than pre-treatment status; no significant difference were observed in bladder cystometric capacity after injection of botulinum A toxin treatment; post-void residual urine decreased by 35% at 2 weeks and decreased by 40% at 3 months; DLPP decreased by 32% at 2 weeks and decreased by 27.86% at 3 months. There is no major complication noted.

Conclusion: Transurethral injection of Botulinum A toxin into the sphincter muscle may be a safe and promising therapeutic option for voiding dysfunction in the patients with neurogenic detrusor-external sphincter dyssynergia.

UP:175

The Role of Posterior Tibial Nerve Stimulation in Male Patients with Storage Lower Urinary Tract Symptoms: Is Urodynamics Mandated?

Arumham V, Green L, Graham D, Dadswell R, Kraszewski M, Sangaralingam S, Godbole H, Almpanis S, Nair G, McDonald J
North Middlesex University Hospital NHS Trust, London, UK

Introduction and Objectives: Overactive bladder is known to have a significant impact on

UP:173, Table 1.

| | | France (%) | Germany (%) | Italy (%) | Spain (%) | UK (%) |
|---------------------------------|----|------------|-------------|-----------|-----------|----------|
| alpha blockers | TG | 91 (43) | 348 (82) | 136 (65) | 100 (54) | 116 (50) |
| | UG | 46 (52) | 129 (68) | 96 (74) | 54 (68) | 68 (78) |
| alpha blockers and phytotherapy | TG | 24 (11) | 6 (1) | 4 (2) | 9 (5) | 0 |
| | UG | 1 (1) | 1 (1) | 5 (4) | 0 | 0 |
| phytotherapy | TG | 41 (20) | 13 (3) | 6 (3) | 5 (3) | 1 (1) |
| | UG | 30 (34) | 39 (21) | 15 (12) | 7 (9) | 0 |
| anticholinergics | TG | 0 | 2 (1) | 0 | 0 | 4 (2) |
| | UG | 0 | 2 (1) | 0 | 0 | 5 (6) |
| 5 ARI | TG | 19 (9) | 20 (5) | 15 (7) | 15 (8) | 19 (8) |
| | UG | 5 (6) | 3 (2) | 2 (2) | 3 (4) | 8 (9) |
| 5ARI and alpha blockers | TG | 28 (13) | 29 (7) | 47 (23) | 48 (26) | 70 (30) |
| | UG | 5 (6) | 14 (7) | 12 (9) | 10 (13) | 4 (5) |
| other | TG | 7 (3) | 9 (2) | 0 | 9 (5) | 22 (9) |
| | UG | 2 (2) | 2 (1) | 0 | 5 (6) | 2 (2) |

quality of life (QOL) in both women and men. Posterior Tibial Nerve Stimulation (PTNS) is used to stimulate the sacral nerve plexus which concurrently neuromodulates the bladder and pelvic floor and has a relatively low risk of adverse events. Despite similar prevalence rates, OAB in men is often treated inadequately with medical therapies targeted to Bladder Outflow Obstruction. In women PTNS is offered in the absence of a formal Urodynamics. This study assessed the response rate of male patients with Storage Lower Urinary Tract symptoms treated with PTNS prior to further investigation.

Materials and Methods: Over a 2 year period, 29 male patients with no known neurological disease, no voiding LUTs and negligible post-void residual (<50ml) were consented and offered PTNS prior to consideration of second line anti-cholinergic treatment and after intravesical assessment with Flexible Cystoscopy. Patients were prospectively provided with the ICIQ-OAB, UDI-6 and IIQ-7 scoring pro-formas pre-PTNS. All underwent 1 PTNS session lasting 30mins each week for 12 weeks. A repeat pro-forma was performed on completion of the course.

Results: The average age was 64 (range 31-82). Pre-intervention scores for ICIQ-OAB, UDI-6 and IIQ-7 were: 9.55, 48.11 and 54.29 respectively. Post-intervention scores showed an improvement; 7.79, 41.17 and 39.89 which were all statistically significant ($P = 0.0104$). There were no adverse events documented.

Conclusion: PTNS is often considered as an intervention for refractory OAB before consideration of more invasive techniques and after Urodynamic Studies (UDS). OAB in men is often complicated with Voiding LUTs; however in those with purely Storage LUTs, this study shows good adherence rates and similar improvements to symptom and QOL scores and could be considered before more invasive treatment options. Long term outcomes will require follow-up.

UP.176

Prostate Artery Embolisation for Benign Prostate Enlargement: Prospective Short-Term Outcomes from a University Teaching Hospital

Coyne J, Flowers D, Dyer J, Somani B, Harris M, Bryant T, Hacking N
University Hospital Southampton, Southampton, UK

Introduction and Objectives: To evaluate the safety and clinical efficacy of prostate artery embolization (PAE) for benign prostatic enlargement (BPE).

Materials and Methods: Ethical approval was obtained from the new procedures committee and all patients had informed consent prior to their recruitment in the study. Between 20/4/12 and 30/4/13, 25 consecutive patients with moderate to severe lower urinary tract symptoms

UP.176, Table 1.

| Inclusion criteria | Exclusion criteria |
|---|--|
| Age >50/<80 | Severe atherosclerosis/ectasia of iliac vessels on CTA |
| Moderate/severe LUTS IPSS >18, QOL ≥ 4 | Surgical indications (large bladder diverticulae, urethral stenosis, detrusor instability, neurogenic bladder) |
| Peak urinary flow (Qmax) <12ml/s | Prostate volume <40cm ³ |
| Medically refractory BPE | Malignancy |
| | Non-obstructive UDS |

(LUTS) with proven outflow obstruction due to BPE on Urodynamic studies (UDS) underwent PAE. Under local anaesthesia PAE was performed via a unilateral transfemoral approach using non-spherical polyvinyl alcohol (PVA) particles. Clinical effectiveness was evaluated using validated scoring systems; International Prostate Severity Score (IPSS), Quality of Life (QOL) and International Index of Erectile Function (IIEF). Three-day Urinary diaries were recorded. Prostate volume reduction (PVR) and peak urinary flow rates (Qmax) were recorded at baseline and on subsequent clinical follow-up.

Results: Patients meeting inclusion criteria were very symptomatic with mean baseline IPSS of 25.8, QOL score of 4.9 and IIEF of 34.7. IPSS decreased by 53% at 1/12, sustained at 50% on 6/12 follow-up. Bother score reduced by 46% at 1/12 and trend towards further reduction 50% at 6/12. IIEF showed an overall increase of 16% at 6/12 which correlates to symptomatic improvement. Mean prostate volume in the study was 95cm³ with 52% PVR post-treatment. Baseline peak urinary flow was low at 7.6ml/s rising to 11.6ml/s post-procedure (+52%).

Conclusion: PAE is a safe and effective procedure with encouraging results post-procedure and sustained at 6 months follow-up. As well as being effective, the risks of morbidity associated with this procedure is significantly less than other minimally invasive techniques for BPE.

UP.177

Green Light XPS-Photo Selective Vaporization of the Prostate is True Day Case Alternative to Bipolar TURP: Single UK Centre Experience

Emara A, Drinnan N, Barber N
Frimley Park Hospital, Camberley, UK

Introduction and Objectives: Increasing interest in the concept of day case surgery has been encouraged by many authorities in different countries including UK, both from the cost-effectiveness and patient's satisfaction point of view. Although Bipolar TURP (B-TURP) has been originally introduced as a safer option to the traditional mono polar TURP (M-TURP) most reports have described similar hospital stay. In our centre we have been using both techniques for the last 8 years, and more recently we have introduced the new

XPS- GreenLight laser PVP (XPS-GL PVP) system as a day case procedure in 2010.

Materials and Methods: Since July 2010 we have performed over 250 cases using the new XPS-GL PVP with nearly double this number having B-TURP. In this study we have audited cases only from 2013, including 135 patients treated with B-TURP (Group 1) and another 75 had XPS-GL PVP (Group 2). Hospital stay and readmissions have been retrospectively recorded and also patient safety parameters as evidenced by complications rate.

Results: Average age group for both groups was 71.3 and 70.82 respectively, mean ASA grade was 2 for both groups. Mean hospital stay was 2.6 days for Group 1 in comparison to 0.4 days in the second group, readmissions rate was 8.8% in the first group while in the second group was 9.3%, in both groups the readmissions were mainly up-to Clavien-Dindo grade II (predominantly urosepsis or retention), with no cases necessitating further surgical intervention.

Conclusion: This data confirms that in a busy UK district general hospital, XPS-GL PVP is performed on a true day-case basis with no increased risk of readmission compared to bipolar TURP which remains associated with a longer in-hospital stay.

UP.178

Holmium Laser Enucleation of Prostate (HoLEP) as a Day Case Procedure: Is It a Safe Option?

Bonatsos V^{1,2}, Suraparaju L¹, Gupta S¹

¹James Paget University Hospitals NHS Foundation Trust, Great Yarmouth, UK; ²Athens School of Medicine, University of Athens, Athens, Greece

Introduction and Objectives: Holmium laser enucleation (HoLEP) has been proven to be an effective alternative to transurethral resection (TURP) of the prostate for symptomatic prostatic obstruction however there is not enough data regarding its safety as a day case procedure. The aim of this study is to evaluate the efficacy, safety and outcome of Holmium laser enucleation of the prostate (HoLEP) for relief of bladder outlet obstruction (BOO) and mainly to assess the feasibility of performing it as a day case procedure.

Materials and Methods: A prospective review was performed on the clinical data of 100

consecutive patients who underwent HoLEP at our institution (James Paget University Hospital) between 2011 and 2014 by a single surgeon. Patients were evaluated preoperatively with uroflows, IPSS and QoL scores and fitness for having it as a day case procedure. Peri- and postoperative parameters like length of stay, complications, re admissions rates were also evaluated. All patients were seen in follow-up clinic at 3 months.

Results: The patients' mean age was 72 years. Mean enucleation and morcellation times were 53.5 and 15.9 minutes respectively. Mean catheter indwelling period was 4.2 days and mean hospital stay was only 0.85 days with >50% of being day cases. Significant numbers of patients stayed in just for social reasons or because they

were operated late in the afternoon list. Significant improvements were noted in Qmax, IPSS, and QoL at follow-up. Only one patient experienced persistent obstructive symptoms that required reoperation (re do TURP). No blood transfusion was required. Complications (<15%) included mainly haematuria that required irrigation but settled without any intervention. Readmission rate was <10%.

Conclusions: Our study confirms that HoLEP is a safe and effective day case procedure for BOO with a low complication rate. Most importantly this study suggests that it can be performed as a day case procedure with the same safety and outcomes at much reduced cost. Moreover, day case rates can be further increased if morning theatre lists are utilised

and the social issues that can lead to prolonged patient stay are identified earlier and dealt with.

UP.179

Prostatic Urethral Lift Using the Urolift® Device: A Prospective Study from Three UK Centres

Drinnan N¹, McNicholas T², Emara A¹, Barber N¹, Speakman M³

¹Frimley Park Hospital, Surrey, UK; ²The Lister Hospital, Stevenage, UK; ³Taunton and Somerset Hospitals, Taunton, UK

Introduction and Objectives: Men with LUTS secondary to BPH are often seeking a less invasive alternative to TURP particularly as regards the established potential side effects on sexual

UP.179, Table 1. Symptoms, Quality of Life and Flow Results for the Prostatic Urethral Lift

| | 2 Week | 6 Week | 3 Month | 6 Month | 12 Month |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| IPSS | | | | | |
| n (paired values) | 56 | 95 | 82 | 75 | 51 |
| Baseline | 22.7±5.6 | 22.9±6.1 | 23.3±6.0 | 23.2±5.9 | 23.9±6.3 |
| Follow-Up | 14.5±7.2 | 12.2±6.6 | 10.7±6.3 | 11.4±6.0 | 11.6±5.6 |
| Change | -8.2 | -10.7 | -12.6 | -11.8 | -12.3 |
| % Change (95% CI) | -36% (-26% – -46%) | -47% (-40% – -53%) | -54% (-48% – -61%) | -51% (-44% – -58%) | -52% (-45% – -58%) |
| p-value | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| QoL | | | | | |
| n (paired values) | 55 | 73 | 65 | 59 | 43 |
| Baseline | 4.9±0.9 | 4.7±1.0 | 4.8±0.9 | 4.7±1.0 | 4.8±1.0 |
| Follow-Up | 3.0±1.6 | 1.8±1.3 | 2.0±1.4 | 2.0±1.3 | 2.3±1.5 |
| Change | -1.9 | -2.9 | -2.8 | -2.7 | -2.6 |
| % Change (95% CI) | -39% (-32% – -47%) | -62% (-55% – -68%) | -59% (-52% – -66%) | -58% (-51% – -66%) | -53% (-44% – -62%) |
| p-value | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| BPHII | | | | | |
| n (paired values) | 48 | 68 | 65 | 64 | 47 |
| Baseline | 7.3±2.5 | 7.7±2.5 | 7.6±2.5 | 7.6±2.5 | 7.7±2.6 |
| Follow-Up | 5.5±3.6 | 3.4±2.7 | 3.3±2.8 | 3.4±2.6 | 2.9±2.8 |
| Change | -1.8 | -4.3 | -4.3 | -4.2 | -4.7 |
| % Change (95% CI) | -24% (-7% – -42%) | -55% (-46% – -64%) | -57% (-47% – -66%) | -55% (-46% – -65%) | -62% (-51% – -73%) |
| p-value | 0.005 | <0.001 | <0.001 | <0.001 | <0.001 |
| Qmax (mL/sec) | | | | | |
| n (paired values) | 32 | 67 | 80 | 53 | 41 |
| Baseline | 9.6±3.2 | 8.9±3.5 | 8.6±3.8 | 8.5±3.9 | 7.8±4.0 |
| Follow-Up | 13.3±4.7 | 13.6±5.3 | 12.9±4.5 | 12.9±5.0 | 11.9±3.5 |
| Change | 3.7 | 4.7 | 4.3 | 4.4 | 4.0 |
| % Change (95% CI) | 38% (29% – 48%) | 53% (34% – 71%) | 50% (31% – 70%) | 52% (26% – 78%) | 51% (17% – 86%) |
| p-value | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

function. The Prostatic Urethral Lift (PUL) has been shown to offer rapid symptom relief and improved flow while preserving sexual function. We present the results of three UK centres in a prospective study of consecutive patients.

Materials and Methods: Transurethral placement of UroLift® implants opens the prostatic urethra by retracting the lateral lobes. Twenty four men were treated at 3 British centres and evaluated at a median of 1 year by IPSS, BPH Impact Index, Qmax, patient satisfaction and adverse event reports, including sexual function. Average age, prostate size and baseline IPSS were 60 years, 43 mls, and 24, respectively.

Results: Patients experienced symptom relief by 2 weeks, seeing further improvement to 3 months and sustained to 12 months (Table 1). Urinary flow (Qmax) also significantly improved at 12 months. Adverse events were generally mild and transient. There were no reports of ejaculatory or erectile dysfunction. One patient progressed to TURP without complication. A total of 92% patients reported improvement and would recommend procedure when asked at 3 months.

Conclusion: The PUL procedure offers a new option in the treatment of LUTS secondary to BPH. These results from three UK institutions corroborate those of a larger randomized study; the PUL procedure offering rapid and sustained relief of LUTS and improved flow with minimal side effects, whilst uniquely preserving all aspects of sexual function.

UP.181

Treatment Efficacy of Low-Dose Propiverine in Male Patients with Low Urinary Tract Symptoms with Storage Symptoms

Jung S¹, Chung H¹, Hwang I¹, Yu H¹, Hwang E¹, Kim S¹, Kang T¹, Kwon D¹, Park K¹, Cho W², Lim D², Lee C²

¹Chonnam National University Medical School, Gwangju, South Korea; ²Chosun University School of Medicine, Gwangju, South Korea

Introduction and Objectives: This study was done to evaluate the efficacy of low-dose (10 mg) propiverine combined with (0.2 mg) tamsulosin in patients with lower urinary tract symptoms (LUTS) and benign prostatic hyperplasia (BPH), and to investigate whether combined treatment would improve storage symptoms in patients with benign prostatic hyperplasia (BPH).

Materials and Methods: One hundred and forty eight men with LUTS/BPH with storage symptoms (International Prostate Symptom Score \geq 12; storage symptoms \geq 4) were retrospectively reviewed from January 2007 to December 2011. Patients were divided into two groups: control group (tamsulosin 0.2 mg, once daily) and combined group (tamsulosin 0.2 mg, once daily and propiverine 10 mg, once daily).

International Prostatic Symptom Score (IPSS), maximal urinary flow rate (MFR), and post-voided residual urine (PVR) and impact on quality of life (QoL) were reviewed at the start of the study and after 1 and 2 months.

Results: After treatment, subjective and objective outcomes were improved. In the combined group, the voiding symptoms storage symptom score was significantly improved compared with the control group at 1 and 2 months after treatment. The improvements in the IPSS total score, MFR, PVR, and QoL were not significantly different between the groups. No serious adverse events were found.

Conclusion: Treating tamsulosin combined with low-dose propiverine improved the voiding and storage symptom score compared with the tamsulosin only group in patients with LUTS/BPH. The initial combination medication could be an effective treatment for LUTS/BPH patients with storage symptoms.

UP.182

Twelve-Week, Prospective, Open Label, Randomized Trial for the Effect of Anticholinergic Agent or Antidiuretic Agent as Add-On Therapy to Alpha-Blocker for Lower Urinary Tract Symptoms

Lee S¹, Shin Y^{2,3}, Kim J^{2,3}, Zhang L^{2,3}, Zhao C^{4,5}, Kim Y^{2,3}, Park J^{2,3}

¹Dept. of Urology, Sungkyunkwan University Medical School, Seoul, South Korea; ²Dept. of Urology, Chonbuk National University Medical School, Institute for Medical Sciences, Chonbuk National University, Jeonju, South Korea; ³Biomedical Research Institute and Clinical Trial Center of Medical Device, Chonbuk National University Hospital, Jeonju, South Korea; ⁴Dept. of Urology, Renji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China; ⁵Shanghai Institute of Andrology, Shanghai, China

Introduction and Objectives: Effects of anticholinergic or antidiuretic agent add-on therapy to an alpha-blocker for LUTS according to a 3-d voiding diary (VD) are unknown. The aim of this study was to analyze the efficacy of anticholinergic or antidiuretic agent as add-on therapy for nocturia in men previously treated with an alpha-blocker for LUTS.

Materials and Methods: Patients were randomly subdivided into two groups. All patients had a 4-week wash-out. Group A had alpha blocker for 4 weeks, alpha-blocker + anticholinergic agent for 4 weeks and finally 4 weeks of alpha-blocker + antidiuretic agent. Group B had alpha blocker for 4 weeks, alpha-blocker + antidiuretic agent for 4 weeks, and finally 4 weeks of alpha blocker + anticholinergic agent.

In both groups, patients were subdivided into nocturnal polyuria (NP), decreased nocturnal bladder capacity (NBC), or nocturia by both causes. A 3-d VD, total IPSS, IPSS subscores,

overactive bladder symptom score (OABSS), uroflowmetry, and post-void residual urine volume were assessed at baseline, and 4, 8, and 12 weeks.

Results: A total of 405 patients completed the study. During treatment, the changes from baseline in total IPSS and IPSS subscore significantly were decreased at 4 weeks and were maintained for 12 weeks. In the NP subgroup of Group A and B, nocturia number for 3-d, nocturnal urine volume, and nocturnal index were significantly decreased using alpha-blocker + antidiuretic agent. In the decreased NBC subgroup of Group A and B, IPSS storage subscore, OABSS, 3-d nocturia number, 3-d urgency number, and NBC index were all significantly decreased using alpha-blocker + anticholinergic agent.

Conclusion: Anticholinergic agent or antidiuretic agent add-on therapy in men previously treated with an alpha-blocker improves nocturia including LUTS. Patient Summary: We found that the add-on therapy of anticholinergic or antidiuretic for LUTS patient previously treated by alpha-blocker needs 3-d VD.

UP.184

The Influence of Concomitant Prostatic Calcification to the Therapeutic Result in Patients with Chronic Prostatitis

Kim S¹, Kim S², Sohn D¹

¹Yeoju St. Mary's Hospital Catholic University Medical College, Seoul, South Korea; ²Jeju National University Hospital, Jeju-si, South Korea

Introduction and Objectives: Prostatic calcification is frequently found among patient with chronic prostatitis. However, a relation with clinical significance or symptoms and its effect on treatment were not known clearly. Under this background, the author intended to explore a correlation between prostatic calcification, its symptom with treatment effect.

Materials and Methods: A total of 482 patients who underwent prostate ultrasonography and National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) among the patients who received treatment due to chronic prostatitis at the urology department of hospital were targeted for this study. Depending on calcification aspect being shown in prostate ultrasonography, those patients were classified into Group I (A group in which calculus was not found), Group II (discrete, multiple small echoes, usually diffusely distributed through the gland) and Group III (large mass or multiple, coarser echoes) and change of total score of NIH-CPSI and scores of each domain before and after medication were compared.

Results: Number of patients of Group I, II & III was 233, 176 and 73 persons, respectively, and average age of each group was 38.9 \pm 7.5, 40.1 \pm 6.3 and 42.0 \pm 4.9 years old and the age of Group III was significantly older than that

of Group I. In addition, any difference of total score of NIH-CPSI by each group before medication was not represented between Group I and II but total score of Group III was significantly higher than that of Group I and in terms of urination and quality of life also, Group III was significantly higher than Group I. Total score of NIH-CPSI and scores of each domain after medication were decreased in every groups but decreased rate of pain, urination and total score of Group III was significantly marginal compared with that of Group I.

Conclusion: Symptom of prostatitis was observed to be more severe in patient whose prostatic calcification was progressed than in patient

without prostatic calcification and its treatment response was also slow. Therefore, in case that prostatic symptom is severe, it is required to doubt a possibility of prostatic calcification onset and if its calcification was progressed, more positive treatment would be required.

UP.187

Prevalence and Medication Costs of Benign Prostatic Hyperplasia: Korean Nation-Wide Health Insurance Database Study

Park J¹, Lee Y², Lee J³, Yoo T⁴, Chung J⁵, Yun S⁶, Hong J⁷, Seo S⁸, Cho S¹, Son H¹

¹Seoul Metropolitan Government Seoul National University Boramae Medical Center, Seoul, South

Korea; ²Seoul National University Hospital, Seoul, South Korea; ³Sanggye Paik Hospital, Seoul, South Korea; ⁴Eulji General Hospital, Seoul, South Korea; ⁵Inje University Busan Paik Hospital, Busan, South Korea; ⁶Chungbuk National University Hospital, Cheongju, South Korea; ⁷Asan Medical Center, Seoul, South Korea; ⁸Samsung Medical Center, Seoul, South Korea

Introduction and Objectives: Using Korean nation-wide health insurance data, we aimed to analyze prevalence and medication cost of BPH patient management

Materials and Methods: We obtained the recent 5-year data (2007–2011) on the treatment

UP.187, Table 1. 2007–2011 BPH patients with medication and medication costs (\)

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|
| Total (n) (costs (won)) | 666,243 (133,695,557,672) | 754,842 (161,245,082,391) | 888,000 (161,245,082,391) | 988,804 (217,999,356,443) | 1,045,538 (237,036,148,033) |
| Age classification | | | | | |
| 40s | 69,079 (6,062,265,538) | 75,549 (6,889,372,071) | 88,586 (7,906,635,819) | 94,226 (8,334,561,349) | 91,036 (8,117,163,133) |
| 50s | 149,808 (22,681,561,786) | 167,963 (26,248,487,513) | 196,870 (30,439,305,047) | 219,701 (33,803,861,082) | 229,479 (35,974,579,128) |
| 60s | 219,244 (48,630,529,141) | 248,767 (58,763,548,147) | 290,059 (68,969,481,215) | 318,099 (76,665,987,486) | 334,341 (82,394,457,648) |
| 70s | 166,327 (43,122,638,330) | 192,367 (53,081,761,379) | 228,448 (64,515,280,403) | 260,961 (75,137,417,642) | 285,331 (83,237,159,318) |
| Over 80s | 47,556 (12,236,096,184) | 55,082 (15,232,994,268) | 65,754 (19,028,541,926) | 77,127 (22,832,988,637) | 86,063 (26,059,201,754) |
| Hospital classification | | | | | |
| Tertiary hospital | 89,120 (27,008,868,385) | 102,802 (32,749,629,390) | 124,439 (41,957,094,626) | 137,168 (43,946,869,484) | 142,427 (44,646,033,595) |
| Secondary hospital | 153,005 (38,195,824,411) | 178,263 (46,339,318,520) | 193,088 (50,710,269,887) | 217,397 (57,986,222,610) | 231,467 (62,398,453,314) |
| Primary hospital | 36,868 (6,597,241,479) | 37,925 (6,644,940,572) | 47,257 (8,662,917,548) | 52,306 (10,072,534,604) | 53,559 (10,695,038,120) |
| Clinic | 375,155 (59,102,590,747) | 421,835 (72,017,846,727) | 505,832 (86,528,253,162) | 563,332 (101,187,256,002) | 599,243 (114,211,662,882) |
| Public health center | 12,095 (2,791,032,650) | 14,017 (3,493,347,182) | 17,384 (4,257,147,523) | 18,601 (4,806,473,743) | 18,842 (5,084,960,122) |
| Department classification | | | | | |
| Urologists | 425,402 (92,290,130,806) | 491,261 (113,200,712,800) | 576,124 (135,628,174,720) | 640,982 (154,011,683,815) | 676,233 (167,571,865,000) |
| Non-Urologists | 240,841 (41,405,426,866) | 263,581 (48,044,369,591) | 311,876 (56,487,508,026) | 347,822 (63,987,672,628) | 369,305 (69,464,283,033) |
| Area classification | | | | | |
| Big city | 355,420 (72,689,793,125) | 403,296 (87,479,865,157) | 465,435 (102,470,721,377) | 512,811 (113,361,970,980) | 538,644 (121,463,585,485) |
| Small city | 249,544 (49,741,403,755) | 283,570 (60,135,339,362) | 341,027 (73,068,448,700) | 395,239 (86,738,478,087) | 426,337 (97,423,834,444) |
| Rural area | 61,279 (11,264,360,792) | 67,976 (13,629,877,872) | 81,538 (16,576,512,669) | 80,754 (17,898,907,376) | 80,557 (18,148,728,104) |

\ : Korean won, average exchange rate in 2011 was \$1=1126.8

of BPH from the national health insurance system.

Results: The number of registered BPH patients in Korea was 844,931 (2007), 961,983 (2008) 1,116,549 (2009), 1,238,573 (2010), 1,297,750 (2011), respectively. And the prevalence per 10,000 people was 468 (2007), 527 (2008), 606 (2009), 666 (2010), 689 (2011) for each year. The number of patients and the prevalence tended to increase gradually. At age distribution, the numbers of 60s were largest, 80s patients had the highest prevalence. Among total registered BPH patients, about 80% of patients were treated with medications. From 2007 to 2011, the number of BPH patients with medications was increased by 57%, while the costs of medications were increased by 77%. Sub-analysis for the statics, the rates of growth were different depending on the situations. For old age, especially at over 70, the increments of both the patient number and the medication costs were relatively large. In small cities, both of these two variables also showed larger increments than in big cities and rural areas. Whereas, the increase of medication costs was remarkable in clinic and public health center. And urologists showed the larger rate of growth of medication costs than non-urologists (Table 1).

Conclusion: The number of BPH patients in Korea increased steadily without distinction of age. While the increment of medical costs outstripped increments of patient numbers. Appropriate health policy should be supported at this situation.

UP.188

Prostate Screening Should Be Performed in Men with Parkinson's Disease as in General Population

Park H¹, Kim J¹, Ko O², Shin Y³, Park S⁴, Cheon M⁵, Jeong Y²

¹Chonbuk National University Hospital, Jeonju, South Korea; ²Chonbuk National University Medical School, Jeonju, South Korea; ³The Armed Forces Medical Command, Seoul, South Korea; ⁴Wonkwang University School of Medicine, Iksan, South Korea; ⁵Presbyterian Medical Center, Jeonju, South Korea

Introduction and Objectives: As the population is aging, the burden of neurological disorders is increasing but access to care is limited. Especially, considerable number of patients with Parkinson's disease (PD) suffers from gait disturbance as well as lower urinary tract symptoms (LUTS). There are no reports that have evaluated prostate activity of patients with PD. We retrospectively evaluated the prostate activity in men with PD.

Materials and Methods: We reviewed PD patients' medical records between January 2001 and December 2012 from database of 3 different centers, in which all of the enrolled patients had visited or been consulted to urologic

department to evaluate their prostate for the relevant LUTS. And age-matched non-PD patients' data were collected randomly from 3 centers. All subjects including PD as well as non-PD patients had LUTS at presentation. We compared the prostate volume (PV) which measured using a transrectal ultrasonography and serum prostate-specific antigen (PSA) level between PD and non-PD age-matched control group.

Results: A total of 169 PD patients and 169 age-matched non-PD patients' data were collected. The mean ages of both groups were 70.30±7.60 in PD and 69.13±8.47 in non-PD (p=0.129). There were no significant statistical differences between two groups in total PV (29.13±12.69 in PD vs. 30.95±14.91 in non-PD, p=0.164) and total serum PSA (2.42±3.56 vs. 2.26±3.42, p=0.312). Prostate cancer was detected in 11 patients of PD group and in 10 of non-PD group, respectively.

Conclusion: Our data show that prostate activity including prostate volume as well as serum PSA in men with PD is not different compared to age-matched control group. Therefore, the regular prostate evaluation in men with PD is necessary not only to manage the symptoms effectively but also for prostate cancer screening like general population whether they have LUTS or not.

UP.189

New Methods of Pelvic Floor Plasty in Women Suffering from Urinary Incontinence and Long-Term Results of Correction

Neimark A¹, Kondratyeva J¹, Aliev R²

¹Dept. of Urology, Altai State Medical University, Barnaul, Russia; ²Andrology Center of Altai Region, Barnaul, Russia

Introduction and Objectives: Up to the present day surgical treatment of women with urinary incontinence has been an important problem of modern urologic gynecology. By the present moment more than 200 different types of surgery have been developed but none of those methods leads to 100% full recovery. The research described is aimed at analyzing the results of combined surgical treatment of women with pelvic floor incapacity and stress urinary incontinence (a combination and modification of existing methods).

Methods and Materials: Within the time period from 2000 to 2010 we estimated the results obtained in course of examining of 516 women at the age of 21-72 suffering pelvic floor incapacity and stress urinary incontinence, who underwent surgical treatment. The patients underwent the following surgery: anterior colporrhaphy with bladder sphincter plasty according to standard practice subjected to our modification, cystourethropexy (fixation of the paraurethral tissue and the neck of urinary bladder to the anterior abdominal wall by means of ligatures), as appropriate it was supplemented with posterior

colporrhaphy with perineolevatoroplasty and cervicectomy according to generally accepted rules. The operation duration varied from 1 hour 30 minutes to 3 hours and depended on the scale of intervention needed. Foley catheter was removed on the second day after the surgery thus preventing ascending infection development. There were 62 women (12%) who showed lack of independent urination within 2-7 days thus requiring administration of stimulating therapy and bladder catheterization followed by urination recovery. In 2 (0.4%) cases vaginal wound healed by secondary adhesion and in 1 case (0.2%) it was anterior abdominal wall.

Results: Within the period of observation from 1 to 10 years 449 patients (87%) noted a good result, 53 patients (10.2%) showed satisfactory result and 14 patients (2.8%) noted the result was poor. The results were obtained while questioning the patients, taking into consideration the absence of clinical signs of colpoptosis or stress urinary incontinence relapse. In the course of examination on a gynaecological chair 474.7 (92%) patients showed no signs of colpoptosis or stress urinary incontinence. The results of surgical treatment were estimated by means of ultrasonic bladder and urethra examination, and upon surgery, posterior vesicourethral angle became more acute at rest and on straining (130.0±1.02 and 140.4±1.02 gr correspondently) and urethra lengthened at rest as well as on straining (3.38±0.3 # 3.16±1.1 sm correspondently). Moreover, urodynamic parameters changed, upon surgery such results were observed as statistically valid decrease in maximum volumetric uroflow rate down to 17.8±2.42 ml/sec and statistically valid increase in urination duration up to 26.08±2.74 sec.

Conclusion: This method of treatment influences all the stages of pathogenesis and performs the tasks of surgical treatment of patients with stress urinary incontinence, eliminates all the changes of anatomic and functional state of lower urinary tract fully enough and restores "the whole sphincter mechanism of pelvis".

UP.190

Does Female Urethral Dilatation Confer Any Symptomatic Benefit?

Mistry Pain T¹, Rajput G², Otite U²

¹Alexandra Hospital, Redditch, UK; ²Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, UK

Introduction and Objectives: Despite the paucity of evidence relating to its efficacy, female urethral dilatation (UD) is a commonly performed procedure for a variety of lower urinary tract complaints. The aim of this retrospective audit was to assess the indications and outcomes following female UD performed at a UK hospital.

Materials and Methods: All female patients undergoing UD during 2010 at our Trust were

identified using hospital records. Patient notes and clinic letters were reviewed using computerised hospital records and data collected relating to patient demographics, indications, procedure details and outcome.

Results: A total of 173 female patients undergoing UD during 2010 at our trust were identified, and follow-up data was available for 125 patients. Age range was from 19 to 94 years (median 51 years). Indications for UD were: recurrent urinary tract infections (UTIs) and storage, voiding or mixed lower urinary tract symptoms (LUTS). UD was performed predominantly with rigid cystoscopy, and dilatation ranged from 20 – 32 French (median 30 French). Eighty five (68%) of all patients described some symptomatic improvement. Out of these 85 patients, 11 (13%) were found to have a “normal” urethra at cystoscopy, 56 (66%) had urethral stenosis and 5 (6%) had urodynamically proven bladder outflow obstruction. Eleven (13%) had repeat UD and 53 (62%) were discharged following one UD. Seventy one percent of patients with recurrent UTIs with or without LUTS had symptomatic improvement after UD (with 49% after 6 months and 14% after 12 months). Sixty five percent of patients with LUTS alone had symptomatic improvement after UD (with 33% after 6 months and 4% after 12 months). Symptomatic improvement was noted across all ages. No significant adverse effects or side effects were noted.

Conclusion: Our study demonstrates that female UD is a safe procedure that confers symptomatic benefit in the short-term for both recurrent UTIs and LUTS, irrespective of patient age. In a proportion of patients, UD may result in resolution of symptoms allowing patients to be discharged from follow-up.

UP.191

Prospective Outcomes of Sacral Neuromodulation for the Treatment of Detrusor Overactivity in Females after 1 Year

Vyas L¹, Gullamhusein A¹, Simmons R¹, Radley S¹, Reid S^{1,2}

¹Royal Hallamshire Hospital, Sheffield, UK;

²Spinal Injuries Unit Northern General Hospital, Sheffield, UK

Introduction and Objectives: To prospectively evaluate symptom outcomes, after 1 year, in females who have undergone implantation of the InterstimTM neurostimulator for the treatment of detrusor overactivity.

Methods and Materials: Twenty two females were identified with detrusor overactivity and urinary incontinence refractory to medical management and implanted with a sacral neuromodulator. ePAQ questionnaires were used prospectively pre, post first stage and after 1 year.

Results: Two patients failed their first stage trial and were not implanted. Prospective ePAQR data was available for twenty patients. Of the incomplete data 2 patients have delayed activation due to co-morbidities (unrelated to their device). Two patients of the remaining twenty did not benefit from their device and one device was removed due to lack of efficacy. One patient is non-compliant. Infection necessitating wire removal occurred in two patients who have both subsequently had a successful full implant. Two leads have been re-sited, one successfully. There have been no battery infections.

Conclusion: The results demonstrate a clear improvement in symptoms and quality of life in most of the patients receiving permanent implants. One patient found less benefit, after 1 year, the overall outcomes are encouraging. The use of ePAQR provides an efficient and uncomplicated means for patients to record symptoms and clinicians to evaluate them. Further patient numbers are required to assess this treatment modality in our centre and ePAQR as an assessment tool.

UP.193

Low Invasive Implantation of the Cell-active Material “LitAr” in the Treatment of Pelvic Prolapse and Stress Urinary Incontinence: Long-Term Results

Dubrovnik V¹, Kislov A¹, Litvinov S², Egoshin A¹, Tabakov A¹, Shakirov R¹, Mihailovskiy O¹
¹Republic Clinical Hospital, Yoshkar-Ola, Mari El Republic, Russia; ²National Research University, Samara, Russia

Introduction and Objectives: The application of cell-active implants makes possible formation of the connecting tissue for the treatment of pelvic prolapse and stress urinary incontinence. Regeneration and angiogenesis in the replacement zone should proceed without toxic products formation.

Materials and Methods: The 51 middle-aged patients of 42.3 years (37 to 61) with prolapse of vagina's wall and stress urinary incontinence were subjected to the low-invasive colposuspension procedure with the use of the original biodegradable implant “LitAr”. With the use of

low-invasive colposuspension method the biodegradable implant has been placed on paravaginal area both sides from the bladder neck between the surfaces to be sutured. The change of the condition implants has been checked by means of MRI on the 4th, 16th and 30th days after performing the procedure and existed for five years.

Results: In the course of MRI research observed on the 4th day there has been revealed hydration and the start of biodegradation of the material, by the 30th day there was no hydration at the place of implant, in the places of implantation we observed formation of the connecting tissue. We were observing the process of healing the wound without complications for all the patients. All the patients could achieve continence without postoperative complications. Forty seven (92.1%) woman are satisfied results and have no pelvic prolapse and incontinences three years after procedure, 4 (7.9%) note reduction of the vagina's wall prolapse and sign incontinences, but they don't require surgical procedures.

Conclusion: These results of five year observation have shown that the introduction of the biodegradable implant into paravaginal area has provided formation of the native connective tissue in the operation zone and effective in the treatment of pelvic prolapse and stress urinary incontinence. There were no by-effects for the patient. Low-invasive access is preferred for this procedure.

UP.194

Sacrocolpopexy: Is It Really Necessary to Associate a Transobturator Sling?

Chavez Roa C, Resel Folkersma L, Parra Ayala F, Calderon Plazarte V, Moreno Sierra J
Hospital Clinico San Carlos, Madrid, Spain

Introduction and Objectives: Adding a technique for incontinence (transobturator tape sling, TOT) to the surgery of cystocele is controversial, only 30% develop a *de novo* urinary incontinence. We want to evaluate the effectiveness of the transvaginal repair of cystocele using sacrocolpopexy, and quantify the occurrence of *de novo* stress urinary incontinence (SUI) when was not associated to a TOT placement.

Materials and Methods: Prospective study of 106 patients, intervened from 2008 to 2013, undergoing cystocele repair (mesh) associating a TOT only in cases where incontinence was evident. Were studied by medical history, physical examination, urethrocystogram and urodynamic study. Follow-up was performed at one

UP.191, Table 1.

| Median Pre-Implant urinary ePAQ score | Median Pre-Implant quality Of life ePAQ score | Median Pre-Implant urinary ePAQ score | Median Pre-Implant quality Of life ePAQ score | Median Pre-Implant urinary ePAQ score | Median Pre-Implant quality Of life ePAQ score |
|---------------------------------------|---|---------------------------------------|---|---------------------------------------|---|
| 174 | 100 | 47 | 16.5 | 48 | 22 |

UP.194, Table 1.

| Surgery: | N= | Cystocele results | SUI results | De Novo SUI |
|----------------------------|-----|--|-------------|---------------|
| Sacrocolpopexy without TOT | 48p | Success: 44p Improvement: 2p Failure: 2p | 0 | 4p (11.6%) |
| Sacrocolpopexy with TOT | 58p | Success: 55p Improvement: 0p Failure: 3p | 56p (96.6%) | 0 |

month, six months and annually. The cystocele treatment success was defined as complete correction or grade I cystocele on physical examination. Improvement was defined as a decrease from baseline cystocele situation. Success in the treatment of SUI was defined as no use of pads, and improvement as use of ≤ 1 pad per day.

Results: The mean age was 69.14 years (SD 12.44), median follow-up of 29 months (16.5–44). Cystocele I in 0.9% of patients, grade II 32.1%, 62.3% grade III and grade IV in 4.7%. 58 patients (55.7%) associated SUI, of which 32 had associated urgency incontinence (54%). The surgery results listed in the Table 1.

Conclusions: The Sacrocolpopexy was an effective method in the treatment of anterior prolapse. In our series, the systematic application of TOT to patients without SUI had been an 89.4% overtreatment.

UP.195

Klinefelter's Syndrome: Historical Background of the Syndrome Described by American Physicians with a Critical Contribution by British Geneticists

Khan R, Mukherjee A, Bekarma H, Hendry D
Gartnavel General Hospital, Glasgow, UK

Introduction and Objectives: Klinefelter's syndrome is a condition commonly encountered by Urologists dealing with male factor infertility. The syndrome was described in 1942 by American physicians as a clinical syndrome without the knowledge of the genetic basis. It was a British group which described the genetic basis of this syndrome 17 years later in 1959.

Materials and Methods: We reviewed the literature to establish the history of the Klinefelter's syndrome, its clinical description and subsequent discovery of genetic basis.

Results: The syndrome was first described by Harry Fitch Klinefelter Jr. (March 20, 1912 – February 20, 1990) who was an American rheumatologist and endocrinologist. He described how the syndrome was observed by him and his supervisor Dr Albright in Massachusetts General Hospital. They described that patients were tall with gynaecomastia, had very small testes and infertility. They reported it in 1942 in the *Journal of Clinical Endocrinology* titled "A Syndrome Characterized by Gynaecomastia, Aspermatogenesis without Aleydigism, and Increased Excretion of Follicle-Stimulating Hormone".

It came to be popularly known as Klinefelter's syndrome although it was one of Dr Albright's discoveries. There was no known genetic basis known for the syndrome at the time of first description by Klinefelter and his group. It was through the work of British geneticists Professor Patricia A. Jacobs (Born 1934 and currently a Professor of Human Genetics in University of Southampton at Salisbury District Hospital, UK) and Professor John A. Strong that the genetic basis of the syndrome was identified. They were working in Edinburgh in 1959 when they discovered the extra X chromosome (47XXY). This allowed better understanding of the clinical findings described by Klinefelter's group.

Conclusions: We present the history of this syndrome, popularly associated to an American physician. We explain the important and lasting British contribution to the syndrome's genetic basis as well as understanding of its signs and symptoms. We highlight how knowledge about scientific basis of syndromes and diseases can take many years of research to establish.

UP.196

"One Sex, Two Genders": Evolution of the Two-Sex Theory

Gietzmann W, Thomas G, Nawrocki J, Symes A, Larner T, Coker C, Thomas P, Nair R
Brighton and Sussex University Hospitals, Brighton, UK

Introduction and Objectives: Until the 18th century there was one sex. Man and woman shared the same organs. The only difference was that male genitals were external and female ones internal owing to a lack of "vital heat". We examine through literature and image, the social and historical development of the 'two-sex theory.'

Materials and Methods: Contemporary sources and manuscripts from the archives of the Wellcome History of Medicine Collection, Royal Society of Medicine, London, and the Whipple Library, Cambridge, were reviewed.

Results: Before the enlightenment, sex was not binary but a continuum from less perfect-to-perfect, from woman to man. The genders were merely different versions of one sex where "women menstruated and men had bleeding haemorrhoids." "Turn outward the woman's, turn inward... and fold double the man's and you will find the same." Antiquity is littered

with such assertions. These were used as proof that no anatomical difference between man and woman existed. The vagina was an inverted penis, the uterus, an inverted scrotum. This view was mirrored in vocabulary, "testicle" being applied to both male and female anatomy until 1800. However as male and female roles in society differentiated, understanding of anatomy did too, women coming to be seen as "a series of oppositions and contrasts... all parts of her body present the same differences: all express woman...the organs, the tissues, the fibers, we encounter everywhere...the same difference."

Conclusion: History is littered through image and text, a belief that once women and men represented two forms of the same sex. The genders were merely different versions of the same sex. Development of the two-sex theory represents a fundamental change in understanding of anatomy.

UP.197

Philipp Bozzini (1773 -1809) and His Instrument: The Lichtleiter

Bozzini G, Marengi C, Maruccia S, Casellato S, Finkelberg E, Picozzi S, Carmignani L
Dept. of Urology, IRCCS Policlinico San Donato, Milano, Italy

Introduction and Objectives: Philipp Bozzini was born on May 25, 1773, in Mainz, Germany. His father, Nicolaus Maria Bozzini de Bozza, came from a well-to-do Italian family that had to escape from Italy at approximately 1760. Bozzini started his medical studies in Mainz, and approximately in 1794 went to Jena to complete them. On June 12, 1797, Bozzini was granted the title of doctor of medicine, which allowed him to establish in Mainz as physician.

Materials and Methods: Sources from medical journals, German manuscripts and European medical chronicles were analyzed regarding the life and contribution of Philipp Bozzini.

Results: Bozzini traveled several times to France and the Netherlands in order to acquire professional experience. During the War of the Second Coalition against France, Bozzini served in the imperial army and was in charge of a 120-bed campaign hospital in Mainz. His extraordinary merits during this time were known by the Archduke Karl of Austria (1771–1847), who would protect in the future Bozzini's invention. The Lichtleiter was a primitive endoscope to inspect urethra, female bladder, rectum, cervix, mouth or wounds. Bozzini thought that the instrument could be incorporated into Austrian military hospitals. This required a device to be sent to Wien, and also the performance of an expertise by health authorities. After the review the judging committee suggested some changes. Once such changes were made, they were satisfied with the operation of the instrument in patients (only examinations of the peritoneal

cavity were not approved), particularly also because the procedure was painless. Bozzini's knowledge of mathematics, philosophy, and chemistry was outstanding. Aeronautic studies and drawings of a flying device were unfortunately lost. Like many idealist people, Bozzini had no experience in business matters, but devoted himself with enthusiasm to his scientific activities. From 1804 on, his dedication to the development of his instrument for endoscopy was virtually complete. To earn a living, Bozzini practiced obstetrics with extreme care. On April 4, 1809, Bozzini died at 36 years of age from that infection. He left his wife in a bad financial situation. She died 6 months later. Their 3 small children were given over to friends.

Conclusions: Bozzini with his insights and his ideas was three quarters of a century ahead of the technical and scientific possibilities of his time. His instrument with artificial light, mirrors and specula was the father of any endoscope and opened the gate of the modern laparoscopy.

UP.198

Female Genital Mutilation: Basic Notions for the Volunteer Urologist

Chavez Roa C, Santos Arrontes D, Galindo Herrero I, Moreno Sierra J
Hospital Clinico San Carlos, Madrid, Spain

Introduction and Objectives: The female genital mutilation (FGM) defined as "partial or complete removal of the external female genitalia or other injury for non-therapeutic reasons", an ancient and extended practice, is little known in the western world. The objective is to show, from an anthropological point of view, the FGM to the urologists.

Materials and Methods: A literature search was performed in MEDLINE, The Cochrane library, institutions such as WHO and UNICEF, anthropology books and broadcast.

Results: No clue about the origin of FGM, being found from aboriginal tribes of Australia, to African societies. Usually performed by traditional practitioners without anesthesia or antiseptics, with razor blades, cans, glass, etc. The WHO classified into 4 types: I. Clitoridectomy: removal partial or complete clitoris or prepuce; II. Excision: removal partial or complete clitoris and labia minora, with or without labia majora; III. Infibulation: narrowing of the vaginal opening through a covering seal with the inner or outer labia; IV. Others like pricking, piercing, scraping and cauterizing. There is a downward trend, but there are 100-140 million women affected, concentrated mainly in Africa. Some countries like Egypt and Ethiopia with 90-99%. Type I and II are the most common with close to 75% cases. FGM could have originated, as a birth control necessity, in areas with extremely poverty and food lack. Today, it is considered a step towards adulthood prior to

marriage, trying inhibit libido. Present in different religions, but there are no foundations that endorse it, although still the excuse for local authorities in an attempt to maintain the local control of the power. Complications include, hemorrhaging, abscesses, HIV, lacerations of urethra, bladder, vagina and rectum, fractures of the pelvis and hip, obstruction of the meatus and urethral strictures and infibulation present an environment for UTIs and calculus formation.

Conclusions: The FGM is still widely practiced in some places, coexisting with other health and social needs, and it is likely that a urologist in humanitarian campaign had to deal with this situation, so it is indispensable the recognition and understanding of it.

UP.199

The Historical Journey of Condoms "From Tortoise Shell to Silk & Rubber"

Tukmachy H, Nemade H
Basildon and Thurrock University Hospital, Basildon, UK

Introduction and Objectives: The condom has come a long way from a humble loin cloth, tortoise shell to silk, rubber and latex. We present this fascinating historical evolution of the condom.

Materials and Methods: Historical literature, newspapers and the archives of the Hunterian museum of the Royal College of Surgeons of England and the Royal Society of Medicine, London, were reviewed. Rare photographs will be presented with permission.

Results: Historians have fiercely debated the first use of the condom either for contraception or prevention of disease. The use of the condom is first depicted on a painting in the French cave *Grotte des Combarrelles*, which is 12,000–15,000 years old. However, the earliest documentation of condom use was by the Greek writer Antoninus Liberalis in 150 AD who relayed the legend of Minos, a cursed king who allegedly used goat's bladder as female condom to protect his sexual partner from serpents in his semen. Ancient Japanese condoms were made of either tortoise shell known as Kabutogata or from animal leather. The 19th century marked the beginning of the condom manufacturing era with Rubber condoms made in 1855, after the invention of rubber vulcanization by Charles Goodyear in 1839. Latex condoms, however, came almost a century later by the Youngs Rubber Company. The use of condoms had been fiercely opposed throughout history. Remarkably, profound opposition came from the medical industry. In 1717, the English physician Daniel Turner published arguments to condemn the use of condoms. French medical professor, Jean Astruc, also condemned their use by labelling contraception as immoral. The etymology is widely controversial. It may have

come from Dr. Condom, who supplied condoms made of animal sheath to King Charles II. Other reports suggest it came from Colonel Cundum, who designed condoms for soldiers during the English Civil War. However, it most likely originated from the Latin word *condus* meaning receptacle or *cumdom* meaning scabbard.

Conclusion: The historical journey of the condom is not only interesting but also controversial and the evolution of various materials used is utterly fascinating.

UP.200

A Night with Venus, a Lifetime with Mercury: They've Forgotten the Urethral Syringe

Pang K^{1,2}, Venugopal S², Nicholas J³, Miah S³, Wickramarachchi R³, Catto J^{1,2}
¹Academic Urology Unit, University of Sheffield, Sheffield, UK; ²Dept. of Urology, Royal Hallamshire Hospital, Sheffield, UK; ³Dept. of Urology, Rotherham Hospital, Rotherham, UK

Introduction and Objectives: The history of Syphilis has been well evaluated, however, the exact origin of the infectious disease is unclear. The authors explore the developments in the management of Syphilis from the 15th Century to the modern era of medicine.

Materials and Methods: A literature review on Syphilis was performed through Medline, PubMed and Google Scholar.

Results: Syphilis is a bacterial sexually transmitted infection induced by *Treponema pallidum*. It is thought to be carried from the New World to Europe by the Christopher Columbus crew. Crew members on the voyage later joined King Charles VIII in his invasion of Italy, resulting in the disease spread across Europe. The initial recorded outbreak occurred during this French Invasion in Italy in 1495. The disease was termed 'French disease' as it was spread by returning French troops. This was re-termed 'Syphilis' by Italian physician Girolamo Fracastoro in 1530. Syphilis caused pustules to cover the genitalia, face, body and limbs of sufferers and was a major killer in Europe during the Renaissance. *Treponema pallidum* was identified by Fritz Schaudinn and Erich Hoffmann in 1905. There were originally no effective treatment for Syphilis, one remedy was mercury, which was administered by mouth, topically or by urethral injection with syringes. As the understanding of the disease increased, more treatments were discovered. An organo-arsenical drug, Salvarsan developed in 1908 by Noble Prize winner Paul Ehrlich's team, unfortunately, this drug was very toxic and not effective for late disease especially, neuro-syphilis. It was observed that those who developed high fevers were cured of syphilis. 1927 Noble Prize winner Julius Wagner-Jaureg used this theory to establish treatment via inoculation with Malaria. Syphilis was reliably cured after World War II following

the discovery of Penicillin by Alexander Fleming in 1928.

Conclusion: Syphilis was a major killer during the Renaissance, and it is thought to originate from the Columbus voyage. Traditionally, it was managed with Mercury, which formed the saying 'A night in the arms of Venus leads to a Lifetime on Mercury'. Nowadays, syphilis is readily treatable with antibiotics.

UP201

Foleys in a Nutshell

Abusanad O, McCabe J

St Helens and Knowsley NHS Trust, Prescott, UK

Introduction and Objectives: Dr. Frederic Eugene Basil Foley, best known to modern urologists as the man whose name attached to the self-retaining balloon catheter, the commonest urethral catheter ever used.

Materials and Methods: Dr Foley was an American Urologist, from St. Cloud, Minnesota (5th April, 1891 – 24th March, 1966). He studied languages at Yale University, receiving a bachelor's degree in 1914, and trained in medicine at John Hopkins School of Medicine until his graduation in 1918. Foley worked as a urologist in Boston, Massachusetts and became chief of urology at Ancker Hospital, Minnesota.

Results: In 1930, Foley developed an indwelling catheter to provide continuous drainage of the bladder, preceded by describing self-retaining balloon catheter in 1929, used to achieve haemostasis after cystoscopic prostatectomy. Foley introduced latex balloon catheter at a urological meeting in 1935, which was adopted by C.R Bard Company of New Jersey for distributing these catheters, under the name of the inventor. Though Foley lost a legal battle with Davol Company for the patent later on, this catheter has since been known as the "Foley". Foley had further contributions in medical inventions in addition to urethral catheters; Foleys Procedure (or Foley Y-plasty Pyeloplasty) a novel technique for treating Pelvi-Ureteric Junction stricture, also described the first Artificial Urethral Sphincter.

Conclusion: Throughout the years, the materials used to make catheters have been evolved, but the basic design of the 1930s is unchanged as first described by Dr Foley in 1930. Foleys catheter has been sized using the French units, where 1Fr is equivalent to 0.33mm.

UP202

Keeping Up with Priapism

Nicholas J¹, Pang K², Miah S¹, Venugopal S³, Ali Z⁴, Osman N³, Mangera A³, Catto J²

¹Dept. of Urology, Rotherham General Hospital, Rotherham, UK; ²Academic Urology Unit, University of Sheffield, Sheffield, UK; ³Dept. of Urology, Royal Hallamshire Hospital, Sheffield, UK; ⁴Dept. of Urology, Stepping Hill Hospital, Stockport, UK

Introduction and Objectives: Priapism is a urological emergency that requires prompt management. Here we explore the evolution of historical practices for priapism management starting from ancient times.

Materials and Methods: A literature review was performed on priapism utilising PubMed, Medline and Google Scholar.

Results: The earliest recorded references to the treatment of priapism come from Ancient Egypt. These included a number of ointments and balms designed to "loosen stiff parts of the body", composed chiefly from a mixture of plant and animal fats alongside acacia juice, ox's spleen and mud. In the nineteenth century, Tripe, Hulke and others published case reports detailing their attempts at medical management of the condition. These included the topical application of tinctures to ease the erection locally, containing ingredients such as rhubarb, colocynth and mercury, and systemic treatments intended to reduce the patients' sexual drive, such as potassium bromide and emetics. Other methods included the repeated application of leeches to the perineum, to little effect. In the mid-nineteenth century, documented cases of surgical evacuation of priapism were met with scepticism, and conservative methods remained the preferred course of treatment, despite little success. Surgical methods became the preferred treatment option only at the end of the nineteenth century.

Conclusion: Various conservative methods were employed for the treatment of priapism throughout history, all of which delivered little success. With the advent of more successful conservative measures, prompt surgical aspiration and a variety of surgical techniques, modern sufferers have been spared the gruesome sight of a tank of leeches in the corner of the doctor's office!

UP203

The Commercialisation of Urine in Ancient Rome

Drinnan N, Ni Raghallaigh H, De Juniac A, Chetwood A, Emara A, Barber N
Frimley Park Hospital, Surrey, UK

Introduction and Objectives: We examine the ancient use of urine focusing on its use in industry and medicine throughout the Roman Empire. Although today, urinalysis (using its 3000 metabolites) detects diseases, infections and drug use, its importance dates back centuries.

Materials and Methods: Uroscopy (urine's colour, taste and smell) was a primary diagnostic method before 1800 and wound cleaning and oral intake for numerous infections was medically recommended. However, urine was first used commercially in Ancient Rome – from teeth whitening, to skin creams and treatment for sores and stings. Collected from all sections

of Roman society (from cesspots and public latrines) and sold to the booming tanning and textile industries, where phosphorous and potassium was extracted to clean and whiten the woollen fabric. Ammonia in stale urine was used for yielding pigments for dyeing wool. Animal skins were soaked in urine to remove the hair fibres before tanning.

Results: Major users of urine were the 'Ful-loners' (dry cleaners) who provided frequent serious cleansing to Roman clothing by soaking dirty garments (mainly wool) in a heated mixture of urine and water, separating dirt and sweat before rinsing. Their commercial success led to Emperor Nero levying a tax on the urine used. This was later re enacted by his successor Vespasian (69 – 79 AD).

Conclusion: Vespasian's urine taxes 'vestigial urinae' brought wealth and financial stability to the whole Empire.

UP204

Jean Alfred Fournier and Fournier's Gangrene: A Historical Perspective

Mukherjee A, Khan R, Crooks J, Hendry D
Dept. of Urology, Gartnavel General Hospital, NHS Greater Glasgow and Clyde, Glasgow, Scotland, UK

Introduction and Objectives: Necrotising fasciitis of genitalia, also known as Fournier's gangrene is a life threatening emergency dealt by Urologists. The condition was described in 1883 by French venereologist Jean Alfred Fournier (1832-1914) and it became popularly known as Fournier's gangrene. This year marks the 100th anniversary of his death. We describe key historical accounts of this disease and its current management from a urological perspective.

Materials and Methods: We performed a literature search in PubMed with the words "Fournier's Gangrene". This resulted in 660 articles. Articles related to the historical perspective of the disease and its current management were reviewed.

Results: Our literature search indicated that Jean Alfred Fournier, perhaps the most prominent European venereologist of the second half of the 19th century, described the features of necrotising fasciitis of genitalia and scrotal gangrene. He described 5 cases of men suffering from this rapidly progressive gangrenous condition. Interestingly, the condition had been described previously by Avicenna (1025) and Baurienne (1764) but it's attributed in current urological literature to Fournier. These earlier descriptions were attributed to a single causal factor. Fournier described it as an idiopathic, rapidly progressive gangrene of the male genitalia. However, he often mistakenly attributed the disease to strange and obscure sexual practices, often calling upon physicians to try and obtain confession from patients of "obscene practices".

This gives us an insight into the socio-cultural practices of medicine at that time. In current clinical practice, the diagnosis of Fournier's remains entirely clinical with acute subcutaneous infective processes and rapid spread of gangrene. Immediate management includes surgical debridement, broad spectrum antimicrobials and intensive supportive care. Reconstructive surgery is often required to achieve better cosmesis.

Conclusion: Necrotising fasciitis of genitalia had been described in literature before the report by Fournier in 1883. The early descriptions of scrotal gangrene made by Fournier are still relevant in current clinical practice wherein the diagnosis remains entirely based on clinical suspicion. Fournier's association with venereal disease and his view of this condition being gender-specific has been refuted over the years. The management still includes early surgical debridement with supportive medical care.

UP205

Arthur Jacobs: Father of Modern Urology in Glasgow Cosgrove M

Dept. of Urology, USC, Los Angeles, USA

I had the privilege of being introduced to Urology by Arthur Jacobs who passed away 40 years ago in 1974. Mr. Jacobs started practicing surgery in the pre-antibiotic 1920s when Urology procedures in Great Britain were performed by general surgeons. He created in Glasgow a department within the Royal Infirmary exclusively devoted to Urology – wards, operating rooms, outpatient clinic, diagnostic and radiology facilities, and even an independent medical records department. Mr. Jacobs developed Urology as a specialty in Glasgow and trained the next generation of Urologists. He was at the forefront of Urologic political and clinical advances in Great Britain. He made major contributions to the treatment of genitourinary tuberculosis and to the use of intestine in Urologic surgery. He also introduced in his department the first hemodialysis machine in Glasgow. He was a compassionate physician and a great mentor.

UP206

False Negative MRI Scans in Prostate Cancer Diagnosis

Serrao E¹, Wadhwa K^{1,2}, Barrett T², Frey J², Manke E², Koo B², Gallagher F², Kastner C²

¹University of Cambridge, Cambridge, UK;

²Addenbrookes Hospital, Cambridge, UK

Introduction and Objectives: With the advent of MRI guided biopsy, one important question is that of false negative scans: that is when the MRI has reported no lesion but the patient subsequently is found to have a tumour either on prostatectomy or by subsequent biopsy. This study aims to determine the rate and causes of

UP206, Table 1. Distribution of lesion location and MRI classification of the affected sectors. Number of significant cancers missed on MRI and their correspondent classification.

| Lesion location (sectors) | | | | |
|-------------------------------|-------|--------------------|---------------|---------------|
| 1 | 6 | 3L | 4L | 5L |
| 10/46 | 11/46 | 6/46 | 6/46 | 6/46 |
| MRI analysis | | | MRI report | Target lesion |
| True miss | | | 10 | 7 |
| Non-specific features | | | 12 | 10 |
| No features of a focal lesion | | | 19 | 15 |
| Miscalled zone | | | 3 | 1 |
| Difficult interpretation | | | 2 | 2 |
| Total (lesions): | | | 46 | 35 |
| MRI analysis | | Significant Cancer | | |
| | | MRI report | Target lesion | |
| True miss | | 8/10 | 5/7 | |
| Non-specific features | | 8/12 | 6/10 | |
| No features of a focal lesion | | 11/19 | 10/15 | |
| Miscalled zone | | 2/3 | 0/1 | |
| Difficult interpretation | | 1/2 | 1/2 | |
| Total (lesions): | | 30 out of 46 | 22 out of 35 | |

false negative prostate MRI exams and suggest methods to improve current practice.

Materials and Methods: A total of 148 prostate MRI exams (T2WI, DWI and ADC maps) conducted in patients with suspected prostatic cancer, prior to transrectal ultrasound (TRUS)-guided biopsy were retrospectively reviewed and compared with histological Gleason grade (June 2011 to May 2013). False negative lesions on imaging were identified and retrospectively reviewed by a single experienced radiologist. The prostatic sectors where the histologic lesions were found were characterized.

Results: False negative lesions were identified in 28 exams out of 148 (18.92%; 46 lesions). This number was reduced by the second reader to 25 exams (35 lesions). Most false negative lesions were located in sector 1 (10/46) and 6 (11/46) followed by sectors 3L, 4L and 5L (6/46 each); Table 1.

Conclusions: Double reading decreased the number of false negative scans by 23.91% showing the potential value of doing this. Furthermore, we observed that many of the false negative lesions (15/46) were MRI-invisible, even after double-reading. This might be due to the limitations of the technique; the volume of diseased tissue required in each voxel for the lesion to be detected and the subtle nature of many areas of abnormality. In addition, anterior lesions were more likely to be missed than lesions elsewhere within the prostate, as has previously been shown.

UP207

Defining the Learning Curve in the Implementation of Multi-Parametric MRI for Image Guided Prostate Biopsies

Gaziev G, Wadhwa K, Barrett T, Koo B, Gallagher F, Serrao E, Frey J, Warren A,

Gnanapragasam V, Kastner C, Patruno G, Doble A

Addenbrookes Hospital, Cambridge, UK

Introduction and Objectives: This study aimed at determining the accuracy of Multi-parametric Magnetic Resonance Imaging (mpMRI) during the learning curve of radiologists in a 'Cancer Centre' using MRI targeted, transrectal ultrasound guided transperineal fusion biopsy (MTTP, BiopSee™) to validate.

Materials and Methods: Prospective data on 340 consecutive patients was collated. Patients underwent mpMRI read by two radiologists in line with ESUR standards followed by MTTP biopsy of the lesion (targeted biopsy). A 5-point likert scale of probability was used to determine lesions suspicious for cancer, with scores ≥ 3 taken as a positive MR-target. We compared sequential groups to determine the learning curve. Results: We detected a positive mpMRI in 64 patients from the first cohort (Group A) (91%) and 52 patients from the latest cohort (Group B) (74%). Prostate cancer (CaP) detection rate on mpMRI increased from 42% (27/64) in Group A to 81% (42/52) in Group B (p value 0.003). CaP detection rate by targeted biopsy increased from 27% (17/64) in Group A to 63% (33/52) in Group B (p value 0.001). The negative predictive value of MRI for significant cancer ($>$ Gleason 3+3) was 2/18 in Group B vs. 2/6 in Group A.

Conclusions: We demonstrate an improvement in detection of CaP for MRI reporting over time, suggesting a learning curve for the technique. Despite an improved negative predictive value for significant cancer, this did not reach a level whereby biopsy can be avoided in MR negative cases.

UP208

Multiparametric MRI Guidance in the Initial Set of Prostate Biopsies: What is the Real Benefit?

Acar O¹, Esen T^{1,2}, Colakoglu B³, Vural M³, Peker O⁴, Musaoglu A¹

¹Dept. of Urology, VKF American Hospital, Istanbul, Turkey; ²Koc University, School of Medicine, Istanbul, Turkey; ³Dept. of Radiology, VKF American Hospital, Istanbul, Turkey; ⁴Dept. of Pathology, VKF American Hospital, Istanbul, Turkey

Introduction and Objectives: With the increased recognition of the capabilities of prostate Mp-MRI, attempts are being made to incorporate MRI into routine prostate biopsies. In this study, we aimed to analyze the diagnostic yield after cognitive fusion, blind and in-bore biopsies which were conducted as the initial sampling modality.

Materials and Methods: Charts of the patients (n=151), who have undergone transrectal prostate biopsy after the adaptation of Mp-MRI into routine clinical practice were retrospectively reviewed. Those patients with previous negative biopsies (n=24) and abnormal digital rectal examination findings (n=16) were excluded. Mp-MRI included 2D T2-weighted imaging, diffusion-weighted imaging, and dynamic contrast-enhanced imaging. Cognitive fusion biopsies were performed after the radiologist has reviewed Mp-MRI images whereas blind biopsies were done in the absence of such a feedback. In-bore biopsies were conducted by means of real-time targeting under MRI guidance.

Results: Between January 2012 and February 2014, a total of 102 patients, fulfilling the above mentioned criteria, have undergone blind (n=37), cognitive fusion (n=49) and in-bore (n=14) biopsies. Mean age, serum PSA value and prostate size did not differ significantly between study groups. In the blind biopsy group, 51.3% were diagnosed with prostate cancer, while the same ratio was 55.1% and 71.4% in the cognitive fusion and in-bore biopsy groups, respectively (p=0.429). Clinically significant prostate cancer (based on clinical criteria) ratio was 69.1%, 70.3% and 90% in the blind, cognitive fusion and in-bore biopsy groups, respectively (p=0.31). According to the histopathological variables in the prostatectomy specimen, 85.7%, 93.3% and 100% of the patients in the blind, cognitive fusion and in-bore biopsy groups, respectively had significant prostate cancer (p=NA). In the cognitive fusion group, prostate cancer was diagnosed outside the oversampled MRI-suspicious regions in 9 patients, while 16 patients had prostate cancer both inside and outside the MRI-suspicious regions.

Conclusion: Mp-MRI guidance did not increase the diagnostic yield in the first set of transrectal prostate biopsies at a significant magnitude. Mp-MRI may be more efficient

after multiple negative biopsies and MRI-TRUS fusion softwares might be the ideal way of adapting image guidance to prostate biopsies.

UP209

Is the Complete Resection of Prostatic Adenoma after Transurethral Resection of Prostate (TURP) Really True? Analysis of Structural Changes of Prostate on Transrectal Ultrasonography (TRUS)

Cho J, Cho H, Kang J, Yoo T
Eulji Hospital, Seoul, South Korea

Introduction and Objectives: To investigate the status of prostatic adenoma on TRUS after TURP.

Materials and Methods: We retrospectively investigated data from patients who were confirmed complete resection of prostate adenoma on resectoscope after TURP by operators. International prostate symptom score (IPSS), maximum uroflow rate (Qmax), voided volume weight of resected adenoma and finding on TRUS were performed pre- and postoperatively 3 months. All surgeries were undergone by two right hand dominant and experienced surgeons (at least 100 pervious TURP performed).

Results: A total 87 patients were enrolled. The preoperative prostate and adenoma size was 63.8±33.8g and 33.9±16.3g. The preoperative Qmax was 8.4±3.3ml/sec, voided volume 156.8±82.9ml and IPSS 18.8±8.3. The resected adenoma was 21.8±11.7g and resection rate of adenoma (postoperative TZ volume/preoperative TZ volume) was 72.0%. The postoperative prostate size and adenoma was 17.9±4.5g and 5.5±2.6g. The increase in postoperative Qmax was 7.6±6.3ml/s and voided volume 105.3±120.4ml. The IPSS was decreased to 11.4±8.2. On postoperative TRUS, the axial diameter of opening on prostate was 9.9±5.7mm. In some case, a small amount adenoma remained around the verumontanum. Thirty (34.4%) patients did not have remaining adenoma. But 42 (48.3%) of patients had it remaining on left, 6 (6.9%) on right and 10 (10.3%) on both sides at verumontanum.

Conclusions: TURP is a surgical method that can remove sufficiently adenoma of benign prostatic hyperplasia. However, it is difficult to completely remove adenoma around verumontanum on the opposite side of the dominant hand of the operator. Therefore, more attention should be given around verumontanum at TURP.

UP211

Use of Urinary Beta-2 Microglobulin as Renal Injury Index

Kontos S¹, Tsafarakidis P², Nalagatla S¹

¹Monklands Hospital, NHS Lanarkshire, Airdrie, Scotland, UK; ²Broomfield Hospital, Chelmsford, UK

Introduction and Objectives: Human Beta-2 Microglobulin (B2MG) is a protein filtered by

the glomeruli and reabsorbed by the proximal tubular cells where it is metabolized. B2MG is expressed on nucleated cells, and is found at low levels in the serum and urine of normal individuals. The aim of this study was to elucidate the relationship between urinary levels of B2MG and renal injuries and to correlate them with clinicopathological parameters.

Materials and Methods: Urine samples of 85 patients with renal injuries were collected after 24h, 2 days and 7 days for measuring B2MG. The control group consisted of 10 healthy subjects (<300ng/ml). The patients underwent image study by U/S and CT. Patients' age ranged from 18 to 70 years. Their diagnoses were reported as follows: 13 (15.3%) had Grade I, 21 (24.7%) had Grade II, 16 (18.8%) Grade III, 8 (9.4%) Grade IV and 12 (14.1%) Grade V. All patients with Grade IV and V underwent nephrectomy due to hemodynamic instability. Relationship between B2MG and Grade of renal injury was evaluated with Kruskal-Wallis and confirmed by the Cochran-Armitage test for trend.

Results: In the urine sample of 15 patients with negative image study for renal injury, we detected B2MG with median value 524 ng/ml. A statistically significant negative relationship was found between levels of B2MG across the early period after renal injury ($r_s = -0.31$, p-value=0.004), meaning that when patients go to 7th day, this is followed by a decrease in B2MG. Patients with Grade IV have 2579.7 ng/ml greater B2MG compared to patients in Grade 0 and subjects with Grade V have a 4956.5 ng/ml greater B2MG compared to patients in Grade 0, meaning that the level of B2MG is increased. B2MG of patients with Grade IV-V, who underwent nephrectomy were normalized in 2nd and 7th day postoperatively.

Conclusions: B2MG constitutes reliable index for renal injury and it can be used when the image study is not available or not diagnostic for renal injury and the suspicion is placed by the existence microscopic or macroscopic hematuria.

UP212

Is MRI-Directed Limited Transperineal Mapping Prostatic Biopsies a Feasible Strategy to Diagnose Prostate Cancer?

Mukherjee A¹, Morton S¹, Fraser S², Salmond J³, Baxter G³, Leung H^{1,4,5}

¹Dept. of Urology, NHS Greater Glasgow and Clyde, Glasgow, Scotland, UK; ²Dept. of Pathology, NHS Greater Glasgow and Clyde, Glasgow, Scotland, UK; ³Dept. of Radiology, NHS Greater Glasgow and Clyde, Glasgow, Scotland, UK; ⁴Beatson Institute for Cancer Research, Glasgow, Scotland, UK; ⁵Institute of Cancer Sciences, University of Glasgow, Glasgow, Scotland, UK

Introduction and Objectives: Transperineal prostatic biopsy is firmly established as an

important tool in the diagnosis of prostate cancer (PCa). The pros and cons of template mapping versus imaging-guided targeted biopsies remain to be fully addressed. We aim to study the risk of positive biopsies in the context of MRI findings and examine the accuracy of MRI in predicting the location of transperineal template mapping prostatic biopsy-detected (TTMB) PCa.

Materials and Methods: We studied consecutive patients undergoing TTMB carried out at a tertiary urology centre; histological data and MRI findings of each case were analysed. MRI scans before and/or after TTMB were analysed for localisation of lesion. MRI-identified lesions were categorised according to level of cancer suspicion. Comparative analysis of lesion localisation was done between histological position of PCa on MRI and TTMB.

Results: Over 27 months (February 2011 to May 2013), 44 patients (mean age 65 years) underwent TTMB: 34 patients for primary investigation of PCa and 10 patients with biochemical relapse. Mean PSA level was 15 ng/ml (range 2.5-79). Ten patients received three or more transrectal prostatic biopsies previously. Overall, 31 of 44 (70%) patients were positive for prostate cancer on TTMB with 58% harbouring tumours with Gleason scores ≥ 7 . Ten patients had MRI of the prostate and pelvis both before and after TTMB. Suspicious MRI lesions were identified in 28 patients. Of note, all of these 28 patients had TTMB-confirmed Pca. MRI correctly predicted the outcome of TTMB in 33 of 42 cases (positive predictive value: 79%) in a right-left (R-L) laterality analysis and 25 of 42 cases (positive predictive value: 60%) in an antero-posterior (A-P) analysis. Combined data from the R-L and A-P versus histology identified 14 of 42 (33%) cases demonstrating concordance in localizing lesions to respective quadrants of the prostate.

Conclusion: Our data suggest the usefulness of MRI-directed TTMB in a hemi-gland approach, particularly in a R-L manner. A quadrant approach for identifying PCa without whole gland mapping biopsies is less useful. Our findings support the notion of MRI-based selection of patients for TTMB and that lesions revealed by MRI are useful for targeted-biopsies.

UP213

Comparison of Effectiveness of Pericatheter Retrograde Urethrography and Cystography in Detecting Urethrovessical Anastomosis

Park K, Kim S, Kim Y, Huh J

Jeju National University, Jeju, South Korea

Introduction and Objectives: Urethro-vesical anastomosis (UVA) is a critical point of prostatectomy. UVA leaking can prolong catheterization. Properly evaluation of UVA leaking is important to remove the catheter. We evaluate the method of confirming UVA leaking.

Materials and Methods: We prospectively

analyzed 30 patients who underwent robot assisted laparoscopic prostatectomy for prostate cancer at our institute from March 2013 to February 2014. All patients underwent pericatheter retrograde urethrography (RGU) and cystography at postoperative days 7. We compared the ability of detection of UVA leaking at minimal filling of radiopaque dye and patient discomforts and ability of providing additional information about UVA. In cystography, bladder filling was stop at patients' urinary urge sense or 300cc of filling and 50cc dye was injected intraurethrally in pericatheter RGU. Patients discomfort was evaluated with visual analogue pain scale.

Results: Among 30 patients, UVA leaking was observed in 6 patients. After postoperative 14 days, all patients could remove their urethral catheter without UVA leaking. Both methods detected UVA leaking of 6 patients at postop 7 days. RGU could detect UVA leaking at mean 15.6cc (10-25cc) of injection, cystography did it at mean 83.3cc (50-120cc) ($P < 0.001$). However, patient's pain scale during procedure were mean 6.45 in RGU, 3.75 in cystography ($P < 0.001$). Cystography could understand the bladder shape and functional capacity more effectively rather than RGU.

Conclusion: RGU could detect the UVA leaking with less usage of filling fluid and finely described the pattern of leaking flow than cystography. However, RGU produced more pain during procedure and was less informative rather than cystography.

UP214

Diagnostic Accuracy of MRI Scanning in Predicting Tumour Detection at Transperineal Template Guided Sector Biopsy

Abusanad O¹, Iskander M², Patrick N², McCabe J¹

¹St Helens and Knowsley NHS Trust, Prescot, UK;

²Royal Liverpool University Hospital, Liverpool, UK

Introduction and Objectives: To assess the accuracy of pre-biopsy MRI in detecting prostate cancer prior tototransperineal template guided sector (TPTS) prostate biopsies.

Materials and Methods: Patients undergoing TPTS biopsy for diagnostic purposes (previous negative TRUS biopsies with persisting clinical suspicion of prostate cancer) were included in this prospective analysis. Patients underwent a pre-biopsy 1.5T diffusion weighted (DW) MRI scan. A 24-32 core transperineal biopsy was then undertaken from 6-8 anatomical sectors dependent upon prostate volume.

Results: A total of 106 patients were identified with a mean age 63.9 (range 29-80). Mean PSA and prostate volume was 10.7 (3.8-66.1) and 59.8 (20-140) respectively. Mean number of previous TRUS biopsies was 1 (0-4). Sensitivity

of 1.5T DW MRI for prostate cancer diagnosis in this series was 58% with a specificity of 57%. A sub analysis of those with intermediate or high risk disease revealed a sensitivity of MRI of 58%.

Conclusion: With increased attention being focused on the reliability of MRI in prostate cancer diagnostics, this study serves as a timely reminder of the limitations of standard techniques. It remains to be seen whether newer MRI techniques and Tesla strengths will improve specificity in particular.

UP215

The Importance of Different MRI Sequences in the Measurement of Prostate Cancer Lesion Volume

Petrides N^{1,2}, Robertson N^{1,2}, McCartan N^{1,2}, Freeman A¹, Kirkhan A¹, Allen C^{1,2}, Emberton M^{1,2}, Moore C^{1,2}

¹University College Hospitals, London, UK;

²University College, London, UK

Introduction and Objectives: Multiparametric MRI is of interest for the initial assessment of cancer burden within the prostate more widely used. At present we do not have a clear understanding of the relative importance of the different MRI sequences of a multiparametric MRI scan for cancer detection and volume measurement. We report differences in volume measurement between the different multiparametric MI sequences in a cohort of men in an active surveillance study.

Materials and Methods: MAPPED is a double blind randomized controlled trial comparing dutasteride or placebo in men on active surveillance for prostate cancer with a minimum lesion of 0.2cc on T2 weighted MRI. In the study Multiparametric MRI scans were taken at baseline, 3 and 6 months and reported separately by each of 2 urologists with expertise in prostate MRI. Volumes for the lesions were measured on T2, contrast enhanced and diffusion images. We present a comparison of the volume of the primary lesion on baseline MRI between each of the sequences.

Results: Data for 40 patients are reported. The mean index lesion volume on T2 weighted images was 0.53 mls, compared to 0.52mls on contrast enhanced sequences and 0.42 mls on diffusion weighted sequences. The T2 weighted volume was the highest in 11 patients, diffusion sequences in 6 and contrast enhanced images in 22 with 1 patient having equal T2 and contrast enhanced volumes. Clinically significant difference (more than 33% different from T2) was present in 24 out of 40 patients, with 13 showing an increase in volume. Of those 9 were in the contrast enhanced sequence, 3 in diffusion and 1 in both. Of the 11 showing a reduction in volume 10 were in diffusion weighted and 1 in contrast enhanced imaging.

Conclusion: We demonstrated, in a small

number of patients, a significant variation between the volumes recorded on different MRI sequences. Diffusion series tend to underestimate the volume of the lesion while T2 and contrast enhanced sequences seem to produce more similar results. The difference is often of clinical significance with all 3 modalities upgrading the overall volume of the lesion. That should be taken into account when reporting volumes.

UP216

A Comparison of Multiparametric MRI and Histoscan Imaging in Active Surveillance Patients

Petrides N^{1,2}, Robertson N^{1,2}, Freeman A¹, McCartan N¹, Kirkham A¹, Allen C¹, Emberton M^{1,2}, Moore C^{1,2}

¹University College Hospitals, London, UK;

²University College, London, UK

Introduction and Objectives: Radiological imaging is widely used in the assessment of prostate cancer. Multiparametric MRI (mpMRI) shows high levels of accuracy in detecting cancer within the prostate, but HistoScanning as an ultrasound based technique might provide a cheaper, portable alternative. We report differences between index lesion volume detected on mpMRI and Histoscan in an active surveillance cohort.

Materials and Methods: Patients were recruited for an active surveillance study with a minimum of 0.2cc measurable lesion on mpMRI. Each man underwent baseline assessment with mpMRI and HistoScan. The mpMRI scans were reported by 2 experienced urologists. The HistoScan data was assessed by analysts at Advanced Medical Diagnostics. All reporters were blind to the PSA and biopsy details although they knew that the patient had a prostate cancer diagnosis. We compared the volume of the index lesion on T2 weighted imaging to the index lesion volume on HistoScan analysis.

Results: In total 33 patients were scanned with both modalities at baseline. For MRI we demonstrated 39 lesions in 33 men (range 1-3, median 1), whilst HistoScan showed 89 lesions in 33 men (range 1-5; median 3). The mean MRI defined index lesion volume was 0.57mls (range 0.13-2.4mls), whilst for HistoScan it was 4.1mls (range 0.36-9.46 mls). When total prostate volume was compared between the two modalities, the mean volume was 50.7 mls on MRI and 45.0 mls on HistoScan.

Conclusion: There seems to be a very large discrepancy between MRI and HistoScan lesion volumes. This can be partly explained by the fact that HistoScan images tend to demonstrate more lesions as suspicious, than MRI images and also tend to measure larger volumes per lesion. The PHS02 study will report HistoScan volumes compared to 3mm step-section histology reported on a 5mm grid. This will allow

correlation of true tumour volume with HistoScan volume.

UP217

MRI-TRUS Fusion of Standard End Firing 2D US to Pre-Interventional MRI for Prostate Biopsy: Initial Results of a Novel Coregistration Approach

Orczyk C^{1,2,3}, Taneja S⁴, Valable S², Fohlen A⁵, Bensadoun H¹, Rosenkrantz A⁶, Mikheev A⁶, Villers A⁷, Rusinek H⁶

¹Dept. of Urology, University Hospital of Caen, Caen, France; ²CERVOxy, ISTCT, Caen, France;

³New York University Medical Center, New York, USA; ⁴Div. of Urologic Oncology, Urology, New York University Medical Center, New York, USA; ⁵Dept. of Radiology, University Hospital of Caen, Caen, France; ⁶Dept. of Radiology, New York University Medical Center, New York, USA;

⁷Dept. of Urology, University Hospital of Lille, University of Lille Nord de France, Lille, France

Introduction and Objectives: With improving accuracy of prostate cancer detection and localization using multi-parametric MRI (mpMRI), there is an increasing interest in mpMRI guidance of diagnosis and surveillance biopsy. Widespread application of such concept must address the challenging issues, including the ability to perform MRI-guided biopsy in real-time with adequate accuracy, and in the simple urology office environment. We propose and assess a new approach a new approach to directly coregister 2D standard TRUS to MRI.

Materials and Methods: The developed concept is to use a raw 2D Ultrasound (US) (B&K 8848 device) prostate image and register it to the corresponding MRI slice. Pre-acquired MRI data represents the whole gland in 3D as an ordered collection of 2D MRI slices of known thickness. We have developed software for US-MRI coregistration based on image intensity, texture, and boundaries. The power parameter P is directly proportional to algorithm speed and accuracy. The result is source US overlaying target MRI for visualization. The system was prospectively tested on 8 data sets corresponding to US images matching with prostate MRI. These data come from patients who underwent MRI prior to biopsy. Coregistration results were evaluated as success/failure by an expert urologist who interactively adjusted the transparency of US-MRI overlays and recorded the alignment of anatomical landmarks in both modalities, especially the veru montanum.

Results: The system was able to find the matching slice of T2WI for all single 2D standard US slice. In all cases the location of the veru montanum confirmed the coregistration accuracy in axial plan. The median rank of the T2WI slice was the fifth one among median number of 10 T2WI slices. We tested the power parameter P=1; P=5 and P=20. Twenty three coregistrations over 23 were correct. There was

a significant positive correlation between prostate volume and time of computation for each P value. The image similarity reached a 0.93 mean Dice index using rigid transform. Mean distance to US-MRI boundaries was 1.35 mm.

Conclusion: A promising accurate novel platform appears promising for fusion of MRI data on 2D US images. The method doesn't require 3D US acquisition or tracking device. These initial results comfort our approach for further development for clinical application.

UP218

Combination of Hyperbaric Oxygen Therapy and Surgical Debridement in Management of Fournier's Gangrene

Abbar M, Janane A, Dakkak Y, Ghadouane M, Ameer A

Dept. of Urology, Mohammed V Military Hospital, Rabat, Morocco

Introduction and Objectives: Hyperbaric oxygen therapy (HBOT) concomitant to surgery has been reported to reduce Fournier's gangrene (FG) mortality compared to exclusive surgical debridement. Most report from centers with relatively few patients using only surgical procedure. To assess efficiency of aggressive debridement with adjunctive HBOT. To evaluate Fournier's gangrene severity score index (FGSI) predictive value.

Materials and Methods: Seventy Fournier's gangrene (FG) treated by surgical debridement and HBOT. Data were evaluated physical examination findings, admission and final laboratory tests, surgical debridement extent, and antibiotic used. Patients had adjunctive (HBOT). FGSI, developed to assign a score describing the acuity of disease, was used. This index presents patients' vital signs, metabolic parameters (sodium, potassium, creatinine, and bicarbonate levels, and white blood cell count) and computes a score relating to the severity of disease at that time. Data were assessed according to whether the patient survived or died. All patients underwent surgical debridement. Wound debridement was regularly performed in the post-operative period.

Results: Of 70 patients, 8 died (11.4%) and 62 survived (88.5%). Difference in age between survivors (median age, 50.0 yrs) and non survivors (median age, 54.5 yrs) was not significant (p = 0.321). Median extent of body surface area involved in necrotizing process in patients who survived and did not survive was 2.4% and 4.9%, respectively (p = 0.001). Except for albumin, no significant differences were found between survivors and non survivors. Median admission FGSI scores for survivors and non survivors were 2.1 ± 2.0 and 4.2 ± 3.8, (p = 0.331).

Conclusion: FGSI score did not predict disease severity and the patient's survival. Metabolic aberrations, extent of disease seemed to be

important risk factors for predicting FG severity and patient survival.

UP.219

Penetration of Piperacillin-Tazobactam into Human Prostate: Dosing Considerations for Prostatitis Based on Site-Specific Pharmacokinetics and Pharmacodynamics

Kobayashi I¹, Ikawa K², Nakamura K¹, Nishikawa G¹, Kazikawa K¹, Yoshizawa T¹, Watanabe M¹, Kato Y¹, Zennami K¹, Kanao K¹, Yamada Y³, Mitsui K⁴, Narushima M⁵, Morikawa N², Sumitomo M¹

¹Dept. of Urology, Aichi Medical University School of Medicine, Aichi, Japan; ²Dept. of Clinical Pharmacotherapy, Hiroshima University, Hiroshima, Japan; ³Dept. of Urology, Gifu Social Insurance Hospital, Gifu, Japan; ⁴Dept. of Urology, Tokoname Municipal Hospital, Aichi, Japan; ⁵Dept. of Urology, Meitetsu Hospital, Aichi, Japan

Introduction and Objectives: Piperacillin-tazobactam (PIPC-TAZ) is used for various infections such as urinary tract infections, and is also a therapeutic option for the treatment of prostatitis. However, its prostatic penetration has not been investigated in detail, and its pharmacokinetics-pharmacodynamics (PK-PD) at this site has not been evaluated. This study aimed to investigate the penetration of PIPC-TAZ into human prostate, and to assess effectiveness of PIPC-TAZ against prostatitis by evaluating site-specific PK-PD.

Materials and Methods: Patients with prostatic hypertrophy (n = 47) prophylactically received a 0.5 h infusion of PIPC-TAZ (8:1, 2 g-0.25 g or 4 g-0.5 g) before transurethral resection of the prostate. PIPC-TAZ concentrations in plasma (0.5 to -5 h) and prostate tissue (0.5 to -1.5 h) were analyzed with a three-compartment PK model. The estimated model parameters were, then used to estimate the drug exposure time above the minimum inhibitory concentration for bacteria (T > MIC, the PD indicator for antibacterial effects) in prostate tissue for six PIPC-TAZ regimens (2.25 or 4.5 g; once, twice, three times or four times daily; 0.5 h infusions).

Results: Prostate tissue/plasma ratio of PIPC was about 36% both for the maximum drug concentration (C_{max}) and the area under the drug concentration-time curve (AUC), regardless of the dose. PIPC-TAZ ratio of drug concentrations kept about 8:1 in prostate tissue as well as in plasma. Against MIC distributions for isolates of *Escherichia coli*, *Klebsiella* species and *Proteus* species, regimens of 4.5 g twice daily and 2.25 g three times daily achieved a >90% probability of attaining the bacteriostatic target for PIPC (30% T > MIC) in prostate tissue; regimens of 4.5 g three times daily and 2.25 g four times daily achieved a >90% probability of attaining the bactericidal target for

PIPC (50% T > MIC) in prostate tissue. However, against *Pseudomonas aeruginosa* isolates, none of the tested regimens achieved a >90% probability.

Conclusion: This study investigated the penetration of PIPC-TAZ into human prostate tissue by monitoring the time course changes of the drug concentration in prostate tissue. PIPC-TAZ is appropriate for the treatment of prostatitis from the site-specific PK-PD perspective.

UP.220

Extravaginal Transposition of Urethra in Treatment of Postcoital Cystitis

Komyakov B, Fadeev V

Dept. of Urology, Mechnikov's Medical University, Saint-Petersburg, Russia

Introduction and Objectives: Cystitis is one of the most widespread urinary tract infections among females. This occurs mainly due to anatomical features of female urethra associated with some enhancing congenital or acquired risk factors, as urethral hypospadias and hypermobility. During sexual intercourse urethra displaces into vagina and retrograde contamination with vaginal flora may occur. Clinical manifestations of urinary tract infection can be observed in young females and are associated with the beginning of sexual relations. Complaints may vary between rare episodes of dysuria and severe pain syndrome, affecting the sexual relations, social adaptation and quality of life. Surgical treatment is the most effective option in such patients, but conventional intervention has some potential drawbacks like continuous tension of urethra and compressing of vaginal sutures. Such situation increase risk of suture dehiscence and recurrence of disease. In order to improve the results of surgical treatment we have modified classic method of urethral transposition.

Materials and Methods: From 2005 to 2013, in our clinic, we performed surgical treatment in 106 female patients with recurrent postcoital cystitis. In 19 (17.9%) hypospadias with localization of external urethral orifice in vagina was revealed and 87 (82.1%) demonstrated distal urethra hypermobility. Twenty-eight (26.4%) females underwent conventional distal urethroplasty according to O'Donnell technique and in 78 (73.6%) we've performed modified original extravaginal transposition of urethra.

Results: Six (5.7%) patients experienced suture dehiscence, back up displacement of urethra and recurrence of pathological condition. Five of them were operated using conventional technique. From all 28 patients, treated by O'Donnell intervention satisfactory results were achieved in 23 (82.1%), unsatisfactory – in 5 (17.9%). In women, who underwent new modified transposition of distal urethra, satisfactory results were reached in 77 (98.7%) and no effect only in 1 (1.3%) patient (p<0.05).

Conclusion: Our original technique of extravaginal urethral transposition compared with conventional operation enable to increase the reliability of urethra binding and decrease morbidity of intervention and risk of development of urethral stricture and recurrence of disease.

UP.221

Why Do We Need a Classification of Urogenital Tuberculosis Kulchavenya E

Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia

Introduction and Objectives: Urogenital tuberculosis (UGTB) remains an important problem. Accurate classification is a base for good results of the therapy.

Materials and Methods: We classified 131 UGTB patients in 3 basic groups: kidney tuberculosis (KTB), male genital tuberculosis (MGTB) and generalized UGTB (gUGTB). KTB was divided in 4 stages with possible complications (tuberculosis of urinary tract (TB of ureter, bladder 1-4 grades, urethra), strictures, fistula, renal failure). MGTB implied orchiepididymitis (mono- and bilateral), prostate TB (infiltrative or cavernous forms), TB of seminal vesicles, TB of penis with possible complications (strictures, fistula, infertility, sexual dysfunction).

Results: Among 131 patients in 67.2% the isolated KTB was diagnosed, in 25.2% – MGTB; 7.6% men had gUGTB with KTB-4. Total KTB was diagnosed in 75% of patients (including 8% of gUGTB). In spectrum of KTB more than half of the cases were destructive forms. KTB-3 was diagnosed in 22.4%, isolated KTB-4 – in 21.4%. But as 10 men gUGTB also had KTB-4, total share of destructive forms got 54.0%. KTB-1 was diagnosed in 10.2%, KTB-2 – in 39.8%. Clinical features and symptoms significantly varied between different forms of UGTB.

The approach to the therapy and management of UGTB was differential as well. KTB 1-2 stages were treated with chemotherapy, KTB-3 required partial nephrectomy, KTB-4 was indicated for nephrectomy. Stricture of ureter was indicated for reconstructive surgery in KTB 1-3 stages only. MGTB was treated with chemotherapy; fistula, discharge sinus were indicated for surgery. gUGTB was managed depending on forms of KTB and MGTB.

Conclusion: UGTB is a multivariant disease, and standard unified approach is impossible. Join term "UGTB" has insufficient information in order to estimate therapy, surgery and prognosis – as well as to evaluate the epidemiology. Using clinical classification will improve the efficiency of the therapy of UGTB.

UP.222

Prevalence of Urogenital Tuberculosis in Siberia**Kulchavenya E***Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia*

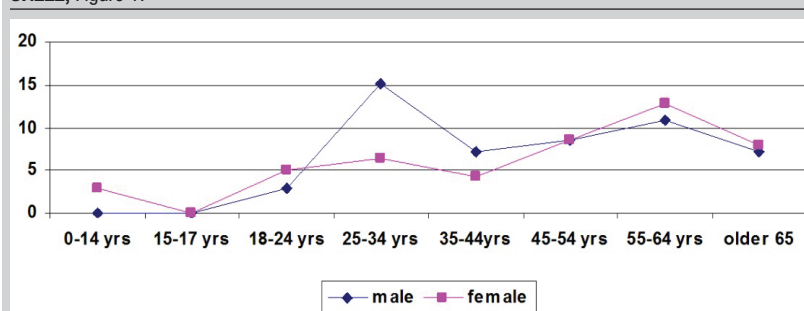
Introduction and Objectives: Real estimation of urogenital tuberculosis (UGTB) is impossible, this disease is very difficult for early diagnosis, it used to hide under the guises of another disease and for ages patients are managed as “urogenital tract infections (UTI)”, “urolithiasis”, “recurrent cystitis” etc. So we can estimate only incidence rate, but we don't know how many patients are unrevealed.

Materials and Methods: Estimates of incidence and spectrum of extrapulmonary tuberculosis (EPTB) in Siberia have been made on the basis of the data available in the official reporting forms.

Results: As a whole 747 patients got sick of EPTB in Siberia in 2012, 30.0% among them were patients with UGTB. Age-gender proportion of UGTB patients is shown in diagram (Figure 1). UGTB was overlooked for 5.6 years on average: patients were managed with misdiagnoses of pyelonephritis (27%), cystitis (43%), cancer (8%) or urolithiasis (22%). Positive smear was in 17.2%, positive PCR results in 24.3% and positive culture of *M.tuberculosis* was in 44.3%. Young men with UGTB were sub-fertile in 54.2% and infertile in 25.9%, 14 patients had family UGTB.

Conclusion: Estimated prevalence of EPTB in Siberia is 2.0 per 100000 inhabitants, the share of UGTB is 30.0%, but there is big reservoir of non-revealed patients. It is necessary to improve the awareness on this disease both amongst doctors and within the population. At a glance we have a small number of UGTB patients. But if UTI is a problem of one patient, UGTB, as any other TB, has a social importance, as it is: i. a contagious disease, ii. a sexually transmitted disease, and iii. it leads to infertility.

UP.222, Figure 1.



UP.223

The Role of Contraception and Phytotherapy in Prophylaxis of Cystitis Relapse: Gender Features of Cystitis**Kulchavenya E, Brizhatyuk E, Khomyakov V**
Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia

Introduction and Objectives: The urinary tract is one of the most frequent sites of bacterial infection in humans, especially in women.

Materials and Methods: With purpose to estimate the influence of the method of contraception on a frequency of relapse of bacterial cystitis, 215 female patients with acute bacterial cystitis were analyzed retrospectively, as well as 89 female patients with recurrent cystitis were enrolled in open prospective comparative study. All these women were in reproductive age (on average of 31.4 ± 2.8), all used the condom as contraceptive. These women were divided in 3 groups: 1st – 26 patients were treated for recurrent cystitis with standard therapy and continue contraception with condom, 2nd group – 31 patients, who after standard therapy changed contraception to oral pills, and 3rd group – 32 patients, who changed contraception to oral pills and took phytotherapy (canephron). Follow-up was 6 months.

Results: Among 215 patients in the retrospective part of the study, 44 were menopausal. Among the rest 219 patients in reproductive age, 19 took oral pills, 63 practiced coitus interrupted, and 129 (61.1%) used condoms. Thus there was significant negative correlation between barrier method of contraception and relapse of cystitis. In the prospective part of the study in 1st group relapse in 6 months was in 43.3%, and in 26.9% - twice. In 2nd group relapse was in 25.8%, in 12.9% - twice. Best results were in 3rd group - relapse occurred in 15.6% only, and no patients had relapse twice.

Conclusion: Barrier contraception predisposed to recurrent course of cystitis, and oral contraceptives reduced a risk of a relapse twice, additional intake of canephron – in three times.

UP.224

Clinical Characteristics of Acute Pyelonephritis after Radical Cystectomy according to Methods of Urinary Diversion**Nam J, Lee D, Han J, Park S, Lee S, Chung M**
Pusan National University Yangsan Hospital, Yangsan, South Korea

Introduction and Objectives: We evaluated and compared the incidence of acute pyelonephritis and its bacterial identification according to urinary diversion method.

Materials and Methods: We analyzed data on 45 patients who underwent radical cystectomy and urinary diversion for bladder cancer between 2010 and 2012 and were observed at least 1 year postoperatively. Of the patients, 15 received an orthotopic bladder substitute (Group 1), ileal conduits (Group 2) and ureterocutaneostomy (Group 3) were created in 18 and 12 patients, respectively. The numbers of episodes of APN, identified microorganism were compared by diversion method.

Results: Compared with Group 1 patients in Group 2 and 3 demonstrated a significantly higher incidence of febrile urinary tract infection ($p=0.032$) and between Group 2 and 3 were similar (Group 1, 46.7% vs. Group 2, 16.7% vs. Group 3, 16.7%). Identified microorganism differed among the group. *Enterococcus faecium*, *Escherichia coli* and *Pseudomonas aeruginosa* were 5, 2, and 2 patients in Group 1. *Enterococcus faecium* were 3 patients in Group 2. Additionally *Enterococcus faecium*, *Acinetobacter baumannii*, *Klebsiella pneumoniae*, and *Enterobacter* species were 1, 1, 1, and 2 patients in Group 3, respectively.

Conclusions: An orthotopic bladder substitution with a higher rate of diversion related acute pyelonephritis. Mostly identified microorganism after radical cystectomy related nosocomial infections. Especially, in the diversion method using intestine *Enterococcus faecium* and *Escherichia coli* were higher.

UP.225

Kidney Tuberculosis Therapy: How to Improve Tolerance
Kulchavenya E*Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia*

Introduction and Objectives: Patients with tuberculosis (TB), including kidney tuberculosis (KTb) need long multi-drug chemotherapy, and compliance depends of the drug tolerance.

Materials and Methods: We analyzed side effects (SE) of the anti-TB chemotherapy in 117 patients with KTb. KTb 3-4 stages was diagnosed in 79 (67.5%), KTb 1-2 stages – in 38 (32.5%); 58 (49.6%) had bilateral KTb. Following complications, were revealed: TB of ureter – 17 (14.5%). Bladder TB – 30 (25.6%), chronic renal failure (CRF) – 24 (20.5%). Some co-morbidities were diagnosed: allergy

– 34 (29.1%), gastrointestinal tract disease – 18 (15.4%), cordial system diseases – 20 (17.1%), non-specific pyelonephritis – 12 (10.6%), chronic obstructive bronchitis – 6 (5.1%).

Results: Among all 117 patients, 48 (41.0%) had SEs, mostly in the beginning of the therapy: in 1 month – 32 (66.7%), 6 (12.5%) – in 2 months. Ninety five patients were treated by intravenous administration of isoniazid and rifampicin and by intramuscular injection of streptomycin, and took pyrazinamide per os (1st group). Twenty two received standard chemotherapy: isoniazid, pyrazinamide and rifampicin per os and intramuscular injection of streptomycin (2nd group). In the 1st group, SEs were in 35 (36.8%), and in the 2nd group – in 13 (59.1%) – $P < 0.005$. More often SEs had women (62.5%). Most toxic drugs were pyrazinamide (87.5%), streptomycin (26.4%), ethambutol (23.3%), Isoniazid (18.2%). Bilateral KTB, CRF were factors of high risk of SEs development. But destructive forms as well as co-morbidity didn't show positive correlation with SEs.

Conclusion: Anti-TB therapy for KTB is complicated by SEs in 41.0%. Intravenous therapy has significantly better tolerance, than standard per os treatment. Most toxic drugs are pyrazinamide, streptomycin and ethambutol. Chance to have SE is higher in woman with bilateral KTB, complicated by CRF.

UP.226

Role of Chlamydia Trachomatis in Patients with Complicated Urinary Tract Infections

Kamel A¹, Badawy H², Abou Eitta A², El Saied M²

¹Dept. of Urology, Theodor Bilharz Research Institute, Giza, Egypt; ²Dept. of Microbiology, Theodor Bilharz Research Institute, Giza, Egypt

Introduction and Objectives: Complicated urinary tract infections occur in patients with a functionally or structurally abnormal genitourinary tract. Many different abnormalities may lead to a designation of complicated urinary tract infection, and these abnormalities will have different influences on the frequency of infection and occurrence of chronic complications. The aim of this study was to assess the role of Chlamydia trachomatis in the persistence of lower urinary tract symptoms (LUTS) and occurrence of chronic complications in male patients with complicated urinary tract infections (UTIs).

Materials and Methods: The study population consisted of 228 male patients with clinically diagnosed complicated UTIs. Patients included were either admitted to the Urology department or attending the Urology outpatient clinic in Theodor Bilharz Research Institute (TBRI). All patients were subjected to full clinical, biochemical and radiological (PUT & IVU) investigations. First voided urine (FVU) samples, mid-stream urine (MSU) and blood samples

were collected from all patients. FVU samples were investigated for Chlamydia trachomatis antigen using direct fluorescent antibody (DFA). MSU samples were used for inoculating of conventional culture media. Blood samples were investigated for the presence of Chlamydia (C.) trachomatis IgG antibodies using Enzyme Immunoassay (EIA).

Results: This study included 228 male patients with complicated UTIs. Age range was 19–63 years old (median 37 years). All patients have associated genitourinary pathologies, namely: non-muscle invasive bladder cancer (10/228), chronic prostatitis (93/228), stones (18/228), urethritis (14/228), obstructive uropathy (25/228), urinary bilharziasis (20/228), epididymorchitis (23/228) and indwelling urethral catheter (25/228). Diabetic patients were 28% (64/228). Cultures of MSU samples showed significant bacterial growth in all patients, with E. coli as the predominant micro-organism (46.4%). C. trachomatis antigen was detected in urine in 53% (121/228) of patients, whereas serological evidence was detected in 96.7% (117/121) of positive cases. Chronic complications requiring surgical intervention occurred in seven patients (5.7%) with positive C. trachomatis tests; three patients with 2ry vaginal hydrocele on top of chronic epididymorchitis, two patients with a firm epididymal mass on top of chronic epididymitis and two patients with bladder neck obstruction on top of chronic prostatitis. Whereas chronic complications requiring prolonged medical therapy (>1 month) occurred in 76 patients, 35.5% (27/76) of them had positive C. trachomatis tests.

Conclusion: The management of complicated UTI is individualized depending on patient variables and the infecting organisms. Our study detects a high prevalence rate of C. trachomatis in cases with complicated UTI. Patients with persistent LUTS should be evaluated for this pathogen as it may act as an important factor in the occurrence of chronic complications.

UP.227

Uncomplicated Recurrent Urinary Tract Infections in Women: Fact or Myth?

Kolesnyk M¹, Stepanova N¹, Lebed L¹, Romanenko O¹, Stashevska N¹, Kundin V²
¹State Institution "Institute of Nephrology of the National Academy of Medical Sciences", Kyiv, Ukraine; ²Dept. of Nuclear Medicine, Cardiology Center, Kiev, Ukraine

Introduction and Objectives: The aim of our study was to analyze the possible causes of recurrences in women with uncomplicated recurrent urinary tract infections (RUTIs).

Materials and Methods: We retrospectively evaluated 386 sexually active, non-pregnant women (mean age 32.7±9.3 yrs). The patients had been diagnosed with uncomplicated recurrent pyelonephritis in the primary treatment at

the Clinic of our Institute between November 2004 and October 2013. All the data were collected from the medical records of the patients, namely: the clinical and laboratory evaluations; the gynecological examination; the 24-h urinary oxalate excretions; the results of urine, vaginal and the urethral samples cultures; the diagnostic imaging. In addition, pyelonephritis was documented by dimercaptosuccinic acid renal scintigraphy scan. The direct radioisotope cystography was performed in 35 women.

Results: This study showed that all of the women with uncomplicated RUTIs had: 1) pelvic inflammatory diseases, namely: cervicitis was diagnosed in 42% (162/386) of them; colpitis in 77% (297/386) of the patients; oophoritis in 21.8% (84/386) of the women; salpingitis in 70% (271/386) of patients. The concentration of Lactobacillus species in the vaginal microflora was significantly inverse correlated with the number of recurrences pyelonephritis per year ($R = -0.62$, $P = 0.007$); 2) hyperoxaluria (≥ 45 mg/d) was identified in 78.2% (302/386) of the women and significantly correlated with the number of recurrences during the year ($R = 0.37$, $P < 0.001$); 3) Mollicutes: 33% (126/386) of the patients with uncomplicated RUTIs were infected by Mollicutes. The determination of U. urealyticum in the urethra was correlated with a large number of recurrences of UTI ($R = 0.19$, $P = 0.04$); 4) bilateral vesicoureteral reflux: 28.6% (10/35) of the women were diagnosed with vesicoureteral reflux. Seventeen percent (6/35) of them had bilateral vesicoureteral reflux. The presence of reflux was significantly associated with delayed emptying of the bladder ($P = 0.37$; $P = 0.01$).

Conclusions: We found that RUTIs in sexually active premenopausal women were associated with pelvic inflammatory diseases, hyperoxaluria, Mollicute infections and vesicoureteral reflux. It is therefore necessary to continue the studies in order to resolve the issue of evaluation of these symptoms as the complicating factors.

UP.228

A Comparison of the Safety and Efficacy of Thrombomodulin vs. Fragmin on Disseminated Intravascular Coagulation with Severe Urinary Tract Infection

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: Disseminated intravascular coagulation (DIC) is a clinical condition with high mortality that is characterized by the systemic activation of coagulation pathways resulting in multiple organ failure. Although no standard treatment for DIC has been established, recent reports have indicated that recombinant human soluble thrombomodulin (rTM) is effective against DIC.

Materials and Methods: To elucidate the

clinical characteristics and outcomes of DIC, we retrospectively analyzed 22 DIC patients who were treated with rTM (10) and Fragmin (12) at Tosei General Hospital over a 4-year period (All patients had urinary infectious diseases). A diagnosis of DIC was made based on the diagnostic criteria of the Japanese Association for Acute Medicine (JAAM) and Japanese Ministry of Health and Welfare (JMHV) for infectious diseases respectively.

Results: Initial mean Acute Physiology and Chronic Health Evaluation (APACHE) II, Sequential Organ Failure Assessment (SOFA) scores and DIC score were 5.31 ± 2.5 (rTM: 4.23, Fragmin: 6.16), 10.36 ± 4.43 (rTM: 8.00, Fragmin: 12.33), and 4.12 ± 1.76 (rTM: 4.09, Fragmin: 4.07), respectively. In this study, 18 of the 22 DIC patients (81.8%) experienced resolution of DIC seven days after administration. There was no significant difference in the assessment of resolution of DIC seven days after administration and survival rate between the two groups of treatment. A higher survival rate was observed after a 28-day observation period in 20 of the 22 patients. A lower DIC score at the initiation of rTM treatment was closely related to a higher rate of resolution of DIC.

Conclusion: Our findings indicate that there was no significant difference in the assessment of the safety and efficacy between the two groups of treatment. Furthermore, making an accurate and early diagnosis of DIC and providing subsequent immediate treatment with rTM may improve the resolution of DIC.

UP229

Utility of the UTI Severity Index in the Optimization of the Diagnostic and Therapeutic Effort for Urinary Tract Infection

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: The objective was to evaluate the utility of the UTI (urinary tract infection) severity index (USI) developed by Tosei General Hospital as a tool to streamline diagnostic and therapeutic effort.

Materials and Methods: USI included 1) SIRS index (negative, 1 positive, 2 positive), 2) Systolic blood pressure (>100 mm Hg, $90-100$ mm Hg, <90 mm Hg), 3) Plt ($\times 1000/\mu\text{l}$) (>120 , $80-120$, <80), 4) Hydronephrosis (negative, with urinary retention, positive), 5) Days after the onset of symptoms (<2 days, 2-3 days, 3 days+). Site of care of patients was recommended in accordance with the USI class: classes I (very low risk) and II (low risk) underwent treatment at home and classes III (intermediate risk), IV (high risk), and V (very high risk) were hospitalized. Class I comprised 31 patients, class II had 22, class III had 27, class IV had 9, and class V had 14 patients.

Results: A total of 78 patients were admitted into the hospital, 5 of whom required admittance to the intensive care unit, and 47 were managed as outpatients from the emergency room. Overall mortality was 3 patients (2.8%). Of these 3, all belonged to class V. Four original Critical Path for USI class $>I$ were introduced and used under the Japanese diagnosis procedure combination based payment system.

Conclusions: In our experience Fine's USI classification, with rationalization and adaptation to the particularities of our hospital, is an effective tool for deciding on hospitalization for selecting the most suitable battery of diagnostic tests based on cost-benefit criteria. Therefore, although hospitalization of patients with UTI should be mainly based on clinical criteria, Fine's USI classification could help physicians and ER doctors in making more rational decisions in this respect. The USI and critical path method could make large undertakings easier to manage.

UP230

Serum Procalcitonin Level for the Prediction of Severity in Acute Pyelonephritis

Lee J, Kim S, Park K, Huh J, Kim Y
Jeju National University, Jeju, South Korea

Introduction and Objectives: It is difficult to predict the progression to poor outcomes in patients of acute pyelonephritis (APN) without obvious symptoms and signs. Delay in diagnosis and treatment often results in rapid progression to septic condition. The aim of this study was to investigate the value of procalcitonin (PCT) level in women with APN.

Materials and Methods: We measured inflammatory biomarkers, and the severity of APN was assessed by 4 grade of disease classification system and stage of sepsis. We analyzed the value of PCT for the prediction of disease severity.

Results: A total of 681 female patients with APN were included. Patients were divided into 4 groups on the basis of systemic inflammatory response syndrome criteria (Infection no SIRS, Sepsis with SIRS, Severe sepsis and Septic shock). The median PCT level was higher in the septic shock group compared with other groups. White blood cell count was significantly different among the groups, whereas high-sensitivity C-reactive protein level and erythrocyte sedimentation rate revealed no differences. The area under the curve for PCT in predicting 28-day mortality was 0.62. For predicting mortality, a cut off value of 0.48 ng/mL had a sensitivity of 85% and a specificity of 50%. However, the disease classification systems were demonstrated to be superior to PCT in predicting 28-day mortality.

Conclusion: The serum PCT combined with other classic markers of inflammation was a helpful marker for the diagnosis of APN. In addition, PCT levels could be a useful predictor of the classification of severity and its respective treatment.

UP231

Antimicrobial Prophylaxis Is Avoidable in Minimally Invasive Partial Nephrectomy Even When It Involves Urinary Tract Opening

Nakayama T, Kijima T, Nakanishi Y, Yoshida S, Ishioka J, Matsuoka Y, Numao N, Saito K, Fujii Y, Kihara K
Dept. of Urology, Tokyo Medical and Dental University, Tokyo, Japan

Introduction and Objectives: Recent guidelines have tentatively categorized partial nephrectomy (pN) as clean-contaminated surgeries. However, it remains controversial whether or not pN should be managed in the same manner as other procedures in this category. Given that our preliminary data demonstrated that antimicrobial prophylaxis (AMP) is avoidable in pN without urinary tract opening (UTO), the optimal management of patients with UTO is especially important in clinical practice. In this study, we prospectively evaluated the feasibility of intraoperative administration of antibiotics after UTO (on-demand AMP), as well as the non-use of AMP in patients with unexpected UTO during pN performed using the gasless laparoendoscopic single-port surgery techniques.

Materials and Methods: We evaluated 252 consecutive patients who underwent gasless single-port pN. After exclusion of 15 patients with uncontrolled diabetes, steroid use or concomitant infectious disease, the remaining 237 patients received pN without AMP. From August 2006 to April 2012 ($n = 176$), single-dose cephalosporin was administered as on-demand AMP if UTO occurred. From May 2012 to July 2013 ($n = 61$), no antibiotics were used regardless of UTO status. Postoperative infectious complications occurring within 30 days were investigated and categorized into superficial surgical site infection (SSI), deep SSI, and febrile urinary tract infection (UTI). When perioperative infection was found, antibiotics were administered immediately.

Results: Overall, infectious complications were observed in 7 (3.0%) patients. No patients had superficial SSI. UTO occurred in 61 (26%) patients: 40 (17%) with on-demand AMP and 21 (9%) without AMP. Of these 61 patients, febrile UTI occurred in one patient who received intraoperative ureteral stenting but no AMP. There was no significant difference in the incidence of infectious complications between patients who did or did not receive on-demand AMP for unexpected UTO. In multivariate analysis, perioperative ureteral stenting ($p = 0.005$) and higher blood loss ($p = 0.038$) were factors associated with increased risk of febrile UTI. All observed perioperative infections were successfully treated with additional antibiotics.

Conclusions: AMP is avoidable in minimally invasive pN even when UTO is involved,

UP.231, Table 1.

| | Over all | UTO (-) | UTO (+) | | p value |
|--|----------|-------------------------|-----------------------|----------------------|---------|
| | | AMP (-) | On-demand AMP (+) | On-demand AMP (-) | |
| Period | | August 2006 – July 2013 | May 2012 – April 2012 | May 2012 – July 2013 | |
| Number | 237 | 176 | 40 | 21 | |
| Superficial SSI (n) (%) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | – |
| Deep SSI (n) (%) | 1 (0.4) | 1 (0.6) | 0 (0) | 0 (0) | 0.742 |
| Febrile UTI (n) (%) | 6 (2.5) | 5 (2.8) | 0 (0) | 1 (4.8) | 0.293 |
| Total (n) (%) | 7 (3.0) | 6 (3.4) | 0 (0) | 1 (4.8) | 0.256 |
| UTO: Urinary tract opening AMP: Antimicrobial prophylaxis SSI: Surgical site infection UTI: Urinary tract infection | | | | | |

although patients with intraoperative ureteral stenting or higher blood loss should receive especially careful postoperative management.

UP.232

Analysis of Therapeutic Alternatives in the Treatment of Chronic Prostatitis/Syndrome Chronic Pelvic Pain

Jimenez-Pacheco A¹, Jimenez-Pacheco A², Nogueras-Ocaña M³

¹Santa Ana Hospital, Granada, Spain; ²Virgen de las Nieves University Hospital, Granada, Spain; ³San Cecilio University Hospital, Granada, Spain

Introduction and Objectives: Chronic / chronic pelvic pain syndrome (CP/CPPS) prostatitis is a disease whose exact prevalence and impact on patients, knowledge about the aetiology, pathophysiology, and optimal therapy is still uncertain, from being considered for years an infectious process, currently a syndrome with a variety of presentations, diagnostic and therapeutic challenges. Standard medical therapy with anti-inflammatory drugs, alpha-blockers, antibiotics and inhibitors of 5-alpha-reductase has not been uniformly effective, probably due to the multifactorial in its pathogenesis. The aim of this paper is to analyze the available evidence on different therapeutic in the treatment of patients with CP/CPPS alternatives.

Materials and Methods: We conducted a literature search of articles published in Pubmed database from 2000 to November 2013 on alternative therapies in the treatment of CP/CPPS, using keywords, with CP/CPPS included: *complementary, alternative, integrative, therapies, interventions, nutrition, phytotherapy, myofascial physical therapy, stress management/ cognitive behavioral therapy, biofeedback, extracorporeal shock wave therapy and acupuncture* in others. We have rejected the articles published in languages difficult to translate, lacking abstract and not adapted to the definition of this disease. **Results:** Several of the existing alternative medical therapies for CP/CPPS treatment includes

modification of diet and lifestyle, herbal medicine, oral immunostimulant bacterial extracts, acupuncture, biofeedback, hyperthermia, electrostimulation, extracorporeal shockwave, myofascial therapy and drugs action on the central and peripheral nervous system. Most studies use a placebo or sham control by control group, while others are compared with different modalities or treatment combinations directly.

Conclusions: The CP/CPPS often requires a multimodal approach alternative therapies should be deemed as an option in refractory to conventional therapies. Although many studies show a significant improvement prior total scores and subscores different NIH-CPSI (Index symptoms of chronic prostatitis the National Institute of Health), more controlled trials randomized are needed to get a statistically validation significant for many of these techniques become suitable therapeutic option for this complex pathology.

UP.233

Making of the Disease Severity Prediction Score in the Occlusive Pyelonephritis with the Urinary Calculi

Imaizumi K¹, Fujita K¹, Horie S²

¹Dept. of Urology, Juntendo University, Shizuoka Hospital, Shizuoka, Japan; ²Dept. of Urology, Juntendo University Hospital, Tokyo, Japan

Introduction and Objectives: For the occlusive pyelonephritis with the urinary calculi, because of rapid urinary tract confinement, the bacteria which increased in the renal pelvis invaded the renal vein easily and progressed to sepsis. I wanted to foresee the outcome of this disease at the time of the first medical examination, but there is little evidence in response to it. I examined the factor which predicts the disease severity and made a disease severity prediction score.

Materials and Methods: I attended 134 cases that I experienced in 13 years from 2001 through 2013. I experienced it at our hospital and related hospitals. I defined the cases using

the vasopressor and blood culture-positive case after hospitalization as a serious case. Average age was 63.9 years old. Out of 134 cases, 35 were serious, and 96 were non-serious. I examined various kinds of factors about the serious illness examples and non-serious examples.

Results: Body temperature, heart rate, serum creatinine, white blood-cell count, the plates, age, which accepted a statistical significant difference ($P < 0.05$). I made the disease severity prediction score in the occlusive pyelonephritis with the urinary calculi based on these factors. I defined 0 ~ 2 points as Very low risk, 3 ~ 5 points as Low risk, 6 ~ 9 points as High risk, 10 ~ 21 points as Very high risk. The ratio of severity is Very low risk: 0%, Low risk: 13%, High risk: 54.8%, Very high risk: 100%. And AUC was 0.86184 which has a high predictive ability. In addition, I examined the results of the prior days before finding that the last few days decreased to less than CRP5ng/ml. using the disease severity prediction score in the occlusive pyelonephritis with the urinary calculi downturn. A Very low and Low risk was for 4.3 days, High risk was for 6.3 days, Very high risk was for 9.7 days.

Conclusion: Our score had high precision for distinction of the aggravation, and it was thought that the disease severity prediction score in the occlusive pyelonephritis with the urinary calculi was proper clinically, and a primary care guidance of the occlusive pyelonephritis with the urinary calculi and the possibility that it was, was suggested.

UP.234

Possible Role of Corynebacterium Sp. in Causing Ulcerative Form of Bladder Pain Syndrome/Interstitial Cystitis (BPS/IC) and Results of Comprehensive Treatment

Loran O¹, Sinyakova L¹, Vinarova N¹, Kaprelyanc A²

¹Dept. of Urology and Surgical Andrology, Russian Medical Academy of Postgraduate Education, Moscow, Russia; ²Institute of Biochemistry, Bach Academy of Sciences, Moscow, Russia

Introduction and Objectives: BPS/IC is one of the leading causes of the chronic pelvic pain. There are many studies conducted for patients with BPS/IC, but the pathogenesis remains unknown. The aim of our study was to elucidate the frequency of infection agent presence in the urine of patients with BPS/IC using new cultural and PCR methods.

Materials and Methods: From 2012 to 2014 in our clinic, we examined 186 patients with recurrent infections and 27 patients of them had cystoscopically proven BPS/IC. Eleven of these 27 patients had ulcerative changes and 16 had glomerulations. In addition to the standard approach to screening patients, which included a urine culture to determine the growth of microorganisms, from 2012 we also conduct the PCR test for the presence of S16 rRNA which was performed in 13 IC/BPS and 17 patients with recurrent infections of the lower urinary tract (RLUTI), as a control group. The urine culture was negative in all patients.

Results: All strains isolated from patients with BPS/IC cases demonstrated the ability to form biofilms *in vitro*. PCR analysis in 6 patients with BPS/IC showed the presence of S16 rRNA. Then in the control group, the results were negative. The DNA sequence unique to *Corynebacterium* sp. was identified in 6 patients. After analyzing the results, we found that all patients in urine of which have been isolated *Corynebacterium* sp. by PCR method has ulcerative form of BPS/IC. All patients underwent a comprehensive treatment which recommended by ESSIC and also include antibiotic therapy, which can penetrate biofilms, namely the group of Fluoroquinolones. Also in period after hydrodistention and ulcer coagulation, patients received course of hyperbaric oxygen (HBO) therapy, intravesical instillation include hyaluronic acid, heparin sulfate. Against the background of the treatment of all patients with BPS/IC was marked positive result: decreased urination during the day, increased urine, pain stopped. It was noted that in the context of comprehensive therapy, remission increased from up to 12-14 months.

Conclusion: Our results raise again the possibility of biofilm forming bacteria *Corynebacterium* sp. involvement in the pathogenesis of BPS/IC, and specifically in ulcerative form. Complex therapy allows stabilize status of patients with BPS/IC, and increase disease-free period, helps to prevent disease progression and improves its forecast.

UP235

Surfactant Protein A Prevents UPEC Adhesion to the Urothelial Surface and Inhibits Growth of UPEC in Urine

Hashimoto J¹, Ariki S², Uehara Y³, Hasegawa Y³, Takamiya R², Hiyama Y¹, Kurimura Y¹, Takahashi S¹, Takahashi M², Masumori N¹, Kuroki Y²

¹Dept. of Urology, Sapporo Medical University, Sapporo, Japan; ²Dept. of Biochemistry, Sapporo Medical University, Sapporo, Japan; ³Dept. of Respiratory Medicine and Allergology, Sapporo Medical University, Sapporo, Japan

Introduction and Objectives: Uropathogenic *Escherichia coli* (UPEC) is the most frequent causative organism of urinary tract infection (UTI). Adhesion of bacterial pili to the host urothelial surface is the first step of infection. FimH, a lectin located on bacterial pili, binds to uroplakin Ia (UPIa), which is a membrane glycoprotein expressed on the bladder urothelium "umbrella cell". Surfactant protein A (SP-A) plays important roles in innate immunity against pulmonary infections in the lung. The expression of SP-A is reported in some organs besides the lung, but its function is not well understood. The purposes of this study were to investigate the existence of SP-A on the bladder and the function of SP-A in the innate immunity when a host develops UTI.

Materials and Methods: Expression of SP-A in the bladder was examined by immunohistochemistry and immunoblotting. Binding of SP-A to UPEC (J96) was determined by ELISA and immunoblotting. To determine the effect of SP-A on the growth of UPEC, J96 was cultured in human urine supplemented with recombinant SP-A. Binding of the FimH receptor-binding domain (FimH-RBD) and UPIa was determined by ELISA. The competitive effect of SP-A on binding between FimH-RBD and UPIa was also examined by ELISA. The effect of SP-A on adhesion of EGFP-expressing J96 to 5637 cells was observed with fluorescence microscopy.

Results: The expression of SP-A was detected in human bladder urothelial cells by immunohistochemistry and also in bladders of mice by immunoblotting. SP-A directly bound to UPEC in a Ca²⁺-dependent manner. SP-A dose-dependently inhibited the growth of UPEC in urine. Binding of FimH-RBD to UPIa was significantly inhibited in the presence of SP-A. Consistent with the competitive effect of SP-A on FimH binding to UPIa, adhesion of UPEC to bladder epithelial cells was decreased in the presence of SP-A.

Conclusion: Our data suggest that SP-A expressed in the bladder plays important roles in innate immunity against UTI. SP-A inhibits the adhesion of UPEC to urothelium and growth of UPEC in urine.

UP236

Pathological Feature and Immunoprofile of Cystitis Glandularis Accompanied with Upper Urinary Tract Obstruction

Li A, Liu S, Zuo X, Zhang F, Lu H, Li W, Fang W, Zhang B
Dept. of Urology, Yangpu Hospital, School of Medicine, Tongji University, Shanghai, China

Introduction and Objectives: To explore the pathological feature and immunoprofile of cystitis glandularis accompanied with upper urinary tract obstruction.

Materials and Methods: Pathological sections from 32 cases of cystitis glandularis with upper urinary tract obstruction in Group A and 34 cases of cystitis glandularis without upper urinary tract obstruction in Group B were observed to pathological feature on microscopy. Meanwhile, an immunohistochemical analysis was employed to determine the expression of p53, Ki67, p21, MMP-9, MUC1, MUC2 and COX-2.

Results: In the two groups, main pathological type was transitional epithelial [17 cases (54.84%) in Group A; 21 cases (61.76%) in Group B], followed by intestinal epithelial [9 cases (29.03%); 7 cases (20.59%)], prostatic epithelial [2 cases (6.45%); 0] and mixed type [3 cases (9.68%); 6 cases (17.65%)], and the difference between the two groups was not significant. All immunohistochemical expressions of p53, Ki67, p21, MMP-9, MUC1, MUC2 and COX-2 in cystitis glandularis were positive in varying degrees, and there was no significant difference between the groups. The transitional epithelial type of cystitis glandularis was compared with the mixed type, the difference of COX-2 was significant, $P < 0.05$. The differences of immunohistochemical expression of p53, Ki67, p21, MMP-9, MUC1, MUC2 and COX-2 among other different pathologic types were not significant.

Conclusion: It is suggested that glandular cystitis accompanied with upper urinary tract obstruction share the same pathological feature and immunoprofile as that without upper urinary tract obstruction. Meanwhile, immunohistochemical expressions of P53, Ki67, p21, MMP-9, MUC1, MUC2, and COX-2 in cystitis glandularis have changed. The differences of Immunohistochemical expressions in different types of cystitis glandularis were not significant and the differences between the accompanied with or without upper urinary tract obstruction were also not significant. It is hard to anticipate the malignant tendency of glandular cystitis by the determination of immunohistochemical expression in tissue. Therefore, to the cystitis glandularis accompanied with upper urinary tract obstruction, the most important thing is to identify and remove the causes of upper urinary tract obstruction. Cystitis glandularis should be actively treated when the lesions are more serious; in other cases, long-term close follow-up should always be done.

UP237

The Use of Hyaluronic Acid in Chronic Cystitis Treatment

Hasan P, Perepanova T
S.R. Urology Institute, Moscow, Russia

Introduction and Objectives: Hyaluronic Acid

(HA), a stabilizer of glycosaminoglycan layer, has been suggested to be an effective means of treatment at chronic cystitis. The objective of the study was to improve the results of chronic cystitis treatment.

Materials and Methods: A selection of 130 women (18-77 years, the mean age 42 years) were recruited. On the basis of standard urological tests added by cystoscopy and biopsy, 3 groups of patients have been determined: I- recurrent bacterial cystitis- 40%, II- chronic cystitis of postmenopausal period- 18%, III -non-bacterial forms of chronic cystitis- 42%. In 92% cases morpho-immunohistochemical study of bladder found a common sign of inflammatory infiltration in the bladder wall. The infiltration consisted of limfogystiocitairial cells with different correlation of the types of mononuclears: I: CD4- 24.72±1.29, CD8- 19.39±1.74, CD4\CD8- 1.27±0.74, CD16- 7.19±1.92, CD95- 4.15±0.84. II: CD4- 23.13±1.93, CD8- 11.72±0.97, CD4\CD8- 1.97±0.53, CD16- 5.34±1.23, CD95- 2.21±0.53. III: CD4- 23.94±4.56, CD8- 18.23±1.23, CD4\CD8- 1.31±0.86, CD16- 6.57±0.83, CD95- 6.24±0.89. These alternations are evidence of aggressive types of inflammatory infiltration resulting in disreparatory processes in interstitial tissue and bladder urothelium. Randomly chosen 30 patients from the 3 groups were treated with HA instillations 2 times a weak (10 instillations a course/3 courses in 1 month interval). The patients received instillations of HA at the dose of 40mg/10ml. taken 1:1 with 0.9% NaCl sol. exposed for not less than 2h. The control cystoscopy and biopsy were carried out on the 21th day.

Results: Considerable positive impact of the therapy (47% in VAS assessment) was reported by 83.3% of women. Recurrence intervals shortened 2.5 times. The post-treatment study of limfogystiocitairial infiltration revealed increase in regenerative capacity of epithelium and less signs of alteration in the interstitial and mucous membrane of bladder: I: CD4- 26.82±1.36, CD8- 16.21±1.33, CD4\CD8- 1.65±0.82, CD16- 5.35±0.78, CD95- 7.53±1.46. II: CD4- 22.47±2.04, CD8- 11.24±0.67, CD4\CD8- 1.99±0.45, CD16- 5.61±1.34, CD95- 2.43±0.44. III: CD4- 28.12±3.24, CD8- 16.45±1.51, CD4\CD8- 1.711±0.82, CD16- 4.98±0.65, CD95- 8.78±1.57.

Conclusions: HA, a stabilizer of glycosaminoglycan layer, has proved to be safe and effective means of local intravesicular therapy of various pathogenetic forms of chronic cystitis.

UP238

Treatment Effects of Recombinant Human Soluble Thrombomodulin in Patients with Septic Urinary Tract Infection-Induced Disseminated Intravascular Coagulation
Hashimoto Y, Okuda N, Koiwa S, Hamamoto

S, Kamiya H, Iwase Y
Toyota Kosei Hospital, Toyota, Japan

Introduction and Objectives: Urinary tract infection (UTI) complicates sepsis and/or disseminated intravascular coagulation (DIC) when the disease becomes severe; mortalities of septic DIC is reported to reach to 37% despite current therapy. Cross-talk between the coagulation system and inflammatory reactions during sepsis causes organ damage followed by multiple organ dysfunction syndrome or even death. Therefore, anticoagulant therapies have been expected to be beneficial in the treatment of severe sepsis. Recombinant human soluble thrombomodulin (rhTM) binds to thrombin to inactivate coagulation, and the thrombin-rhTM complex activates protein C to produce activated protein C. The purpose of this study was to examine the efficacy of rhTM for treating patients with septic UTI-induced DIC.

Materials and Methods: This study comprised 45 patients with septic UTI-induced DIC. All patients fulfilled the criteria of severe sepsis and the International Society on Thrombosis and Haemostasis criteria for overt DIC. The initial 25 patients were treated without rhTM (control group), and the following 20 consecutive patients were treated with rhTM (0.06 mg/kg/day) for six days (rhTM group). The primary outcome measure was 28-day mortality. Stepwise multivariate Cox regression analysis was used to assess which independent variables were associated with mortality. Comparisons of Sequential Organ Failure Assessment (SOFA) score on sequential days between the two groups were analyzed by repeated measures analysis of variance.

Results: Cox regression analysis showed 28-day mortality to be significantly lower in the rhTM group than in the control group (adjusted hazard ratio, 0.301; 95% confidence interval, 0.104 to 0.867; P = 0.028). SOFA score in the rhTM group decreased significantly in comparison with that in the control group (P = 0.029). In the post hoc test, SOFA score decreased rapidly in the rhTM group compared with that in the control group on day 1 (P < 0.05).

Conclusion: We found that rhTM administration may improve organ dysfunction in patients with septic UTI-induced DIC. Further clinical investigations are necessary to evaluate the effect of rhTM on the pathophysiology of septic UTI-induced DIC.

UP239

Comparison between Spontaneous Acute Prostatitis and Biopsy-Related Acute Prostatitis

Kim J¹, Chae J¹, Yoon C¹, Kang S², Park H¹, Kim J², Moon D¹

¹Dept. of Urology, Korea University Guro Hospital, Seoul, South Korea; ²Dept. of Urology, Korea University Anam Hospital, Seoul, South Korea

Introduction and Objectives: To investigate the clinical characteristics and pathogens of acute bacterial prostatitis and to verify the differences between spontaneous acute prostatitis group and biopsy-related acute prostatitis group.

Materials and Methods: We retrospectively reviewed the records of 109 patients hospitalized for acute prostatitis between June 2007 and June 2012. Acute bacterial prostatitis was diagnosed in all patients according to typical

UP239, Table 1. Comparison of clinical characteristics and laboratory data between spontaneous acute prostatitis group and biopsy-related acute prostatitis group

| | S-ABP (n=82) | BX-ABP (n=27) | p-value |
|--|--------------|---------------|---------|
| Age | 60.0 ± 14.3 | 66.7 ± 7.4 | 0.002* |
| Hospitalization (day) | 7.9 ± 5.1 | 8.6 ± 5.5 | 0.586 |
| Peak fever (°C) | 38.2 ± 0.8 | 38.9 ± 0.9 | 0.000* |
| WBC (x10 ⁹ /μl, peak level) | 13.78 ± 6.10 | 13.39 ± 5.07 | 0.764 |
| ANC (x10 ³ /μl, peak level) | 10.51 ± 4.81 | 11.75 ± 4.47 | 0.308 |
| ESR (mm/hr, peak level) | 56.0 ± 33.7 | 49.1 ± 35.8 | 0.473 |
| CRP (mg/L, peak level) | 101.0 ± 79.8 | 85.7 ± 48.4 | 0.471 |
| TRUS (g, total volume) | 39.4 ± 24.6 | 52.3 ± 24.0 | 0.030* |
| TRUS (g, transition volume) | 17.8 ± 17.1 | 29.6 ± 19.7 | 0.007* |
| Urine culture positive | 44 (53.6%) | 12 (44.4%) | 0.406 |
| Blood culture positive | 9 (10.1%) | 15 (55.6%) | 0.000* |
| Overall culture positive | 45 (54.9%) | 17 (63.0%) | 0.951 |
| E. coli | 29 (64.4%) | 15 (88.2%) | 0.037* |
| Quinolone resistance | 9 (20.0%) | 11 (64.7%) | 0.001* |
| EBSL positive | 4 (8.9%) | 9 (52.9%) | 0.024* |

symptoms (fever, voiding difficulty, pain on digital rectal examination) and laboratory tests. Clinical variables (age, underlying disease, symptoms, admission and treatment duration, fever duration), prostate volume, laboratory tests such as CBC with differential count, ESR (erythrocyte sedimentation rate), CRP (C-reactive protein) and urine analysis were reviewed. Patients were divided into two groups (spontaneous acute prostatitis group; S-ABP and biopsy-related acute prostatitis group; BX-ABP) and compared.

Results: The mean age of patients was 61.7 (18-87). Of the 109 patients, 62 (56.9%) had positive urine and/or blood cultures. Patients in BX-ABP showed significantly higher age, prostate volume, peak fever and septicemia than patients in S-ABP. Of the 82 patients with S-ABP, 45 (54.9%) had positive urine and/or blood cultures, including *E. coli* (64%), ESBL-producing bacteria (8.9%). Of the 27 patients with BX-ABP, 17 (63.0%) had positive urine and/or blood cultures, including *E. coli* (88.0%), ESBL-producing bacteria (52.9%).

Conclusion: Patients in BX-ABP showed greater incidence of septicemia, *E. coli*, quinolone-resistance bacteria, ESBL-producing bacteria than patients in S-ABP.

UP241

Proposal of Routine Percutaneous Drainage for Emphysematous Pyelonephritis: Evidence from Single Institutional Experience and Systemic Review

Luo H, Chaing P

Chang Gung Medical Center, Kaohsiung, Taiwan

Introduction and Objectives: Emphysematous pyelonephritis (EPN) is an acute necrotizing renal infection which associates with high mortality rate. Though the mortality rate gradually decreased according to the reviewed literatures, EPN is still a challenging condition during clinical practice at emergency room or intensive care unit. The aim of this study is to set a treatment flowchart in which routine use of PCD intervention was applied for patients with EPN.

Materials and Methods: A systemic search on the Pubmed was made from 1980 to 2012. Finally eighteen series included our institutional data (33 patients) were analyzed in this study. Safety, renal function and survival outcome of PCD intervention for patients with EPN was analyzed according to single institutional experience and systemic review.

Results: In the era of PCD intervention, the mortality rate of patients with EPN dramatically decreased. For severe EPN disease with the need of nephrectomy, preoperative PCD intervention cause less mortality. For less severe disease, PCD still shows benefit in renal function preservation and low mortality rate. Few major complications related to PCD were observed in this series. Reassessment by CT image

should be considered for progressed disease and repeated PCD also carried high success rate.

Conclusion: This study proposed a treatment flow chart in which routine PCD for patients with EPN in order to achieve better survival and renal function outcome.

UP242

Treatment of Cyst Infection in Autosomal Dominant Polycystic Kidney Disease Patients

Onitsuka S¹, Inui M¹, Koike M², Toda J³

¹Dept. of Urology, Yachiyo Medical Center,

Yachiyo-shi, Japan; ²Dept. of Nephrology,

Yachiyo Medical Center, Yachiyo-shi, Japan;

³Dept. of Radiology, Yachiyo Medical Center, Yachiyo-shi, Japan

Introduction and Objectives: It is often that the cyst infection of Autosomal Dominant Polycystic Kidney Disease (ADPKD) suffers from treatment. We review the treatment cases in our institution experience.

Materials and Methods: Between December 2006 and December 2013, cyst infection of the ADPKD in hemodialysis patients who made hospitalizing in our institution was eight cases.

Results: Mean patient age was 64.8 years (range 46 to 71) and male to female ratio was 3:5. Mean hemodialysis career was 16.2 years (range 0.5 to 28). The renal artery embolization reducing ADPKD volume size had been performed by four patients in another hospital. Antibacterial treatment was taken in all cases and percutaneous cyst drainage was performed in two cases. Finally, nephrectomy was performed in two cases. Pathogenic bacterium confirmed by blood culture was *Klebsiella* in three cases, *E. coli* in one, *Citrobacter* in one. Antibacterial agent which had been used was ciprofloxacin in three cases, tazobactam / piperacillin in three, meropenem in two, ceftazidime in one and vancomycin in one. In one severe infectious case used γ -globulin, endotoxin absorption was performed. In two nephrectomy cases, each operative side was left. Each operative time was 150 and 108 minutes and surgical bleeding was 142 and 50ml. Blood transfusion was not performed. Each hospital stay was 29 and 15 days. One case developed postoperative pancreatitis. Excised kidney weight of each two cases was 1254g and 2411g.

Conclusion: ADPKD cyst infection recurring by conservative treatment performed nephrectomy family, but careful treatment preferences are required in consideration of a complication with the surgery and general overall status. The case that the identification of the infection site has difficulty with is present for a multiple cyst and suffers from treatment.

UP243

Risk Factors of Septic Shock in Obstructive Acute Pyelonephritis

Cho D, Jang S, Son J, Lee J

Dept. of Urology, Bundang Jeseang General Hospital, Seongnam, South Korea

Introduction and Objectives: The aim of this study was to identify the risk factors for developing septic shock in patients with obstructive acute pyelonephritis (APN) associated with upper urinary tract calculi.

Materials and Methods: Between January 2004 and December 2013, 73 patients with obstructive acute pyelonephritis associated with upper urinary tract calculi admitted at our institution. Medical records of 73 patients (14 men and 59 women, mean age of 56.6 years) were retrospectively reviewed. The risk factors for septic shock were analyzed using multivariate logistic regression analysis.

Results: Of the 73 patients, 37 patients (50.7%) developed septic shock. Old age, poor performance status and history of hypertension in septic shock group were more common than in non-septic shock group ($p < 0.001$, $p = 0.001$ and $p = 0.012$). Platelet to lymphocyte ratio (PLR), neutrophil to lymphocyte ratio (NLR), C-reactive protein (CRP) level and grade of hydronephrosis in septic shock group were significantly higher than in the non-septic shock group ($p = 0.042$, $p < 0.001$, $p = 0.006$ and $p < 0.001$ respectively). Platelet count and albumin level in septic shock group were significantly lower than in the non-septic shock group ($p = 0.008$ and $p < 0.001$, respectively). Multivariate logistic regression analysis indicated that poor performance status (OR 11.14, $p = 0.029$), decrease in platelet count (OR 0.03, $p = 0.024$), high NLR (OR 21.72, $p = 0.007$) and severe hydronephrosis (OR 13.12, $p = 0.016$) were independent risk factors for developing septic shock.

Conclusion: Patients with obstructive APN associated with upper urinary tract calculi who had poor performance status, decrease in platelet count, high NLR and severe hydronephrosis should be treated with caution against the development of septic shock.

UP244

Clinical Manifestation and Prognosis of Emphysematous Pyelonephritis

Kim S¹, Kim S², Sohn D¹

¹Yeouido St. Mary's Hospital Catholic University

Medical College, Seoul, South Korea; ²Jeju

National University Hospital, Jeju-si, South Korea

Introduction and Objectives: Emphysematous pyelonephritis is a severe necrotizing infectious disease that involves gas formation on the renal parenchyma and its surrounding tissues. Its ideal management is still controversial and clear prognosis on the disease is still non-existent. Thus, this study was carried out to identify clinical characteristics; differences in clinical outcomes depending on the treatment; mortality risk factors.

Materials and Methods: The study subjects

were 22 patients diagnosed with emphysematous pyelonephritis who were hospitalized at our hospital. They were divided into a survival group and non-survival group, and the following were analyzed retrospectively among all of

them: medical history; physical examination; blood tests; blood cultures; abdominal computed tomography finding. The management for those patients was classified into the following cases: only antibiotics was used; antibiotics with

percutaneous drainage was done, antibiotics with ureteral stents was inserted; antibiotics with nephrectomy was done. Finally, whether or not they died during their hospitalization was analysed.

Results: A comparative analysis into the survival group and non-survival group showed that there were no differences in gender, age, diabetes status, lesion location, initial hemodynamic status, and symptom duration. Also, there were no significant differences between the two groups in the laboratory findings on white blood cells counts, hemoglobin, blood glucose, serum creatinine, and serum albumin. Also, there were no differences between the two groups in septicemia status, causative bacteria, and treatment method. However, the non-survival group showed significant reduction in platelet counts, and disseminated intravascular coagulopathy was often involved. Furthermore, the group had a high proportion of shock patients at admission.

Conclusions: The analyzed evidence suggests that significant reduction in platelet counts, disseminated intravascular coagulopathy, and shock at admission seem to be significant risk factors for mortality in patients with emphysematous pyelonephritis. Therefore, more active treatment is obviously needed when such patients are hospitalized.

UP.245

Antibiotic Prophylaxis and Risk Factors of Infectious Complication after Endourologic Procedures of the Upper Urinary Tract

Kim S¹, Kim Y¹, Park K¹, Huh J¹, Sonh D²

¹Dept. of Urology, Jeju National University, Graduate School of Medicine, Jeju, South Korea;

²Dept. of Urology, The Catholic University of Korea, School of Medicine, Seoul, South Korea

Introduction and Objectives: Antibiotic prophylaxis (AP) is commonly used in endourologic procedures of the upper urinary tract to prevent infectious complication. We investigated a retrospective analysis of infectious complication and its risk factors after endourologic procedures of the upper urinary tract, focusing on AP.

Materials and Methods: We studied in 488 cases for simple diagnosis or treatment of the upper urinary tract. Endourologic procedures included ureteral stenting, percutaneous nephrostomy, retrograde pyelography, diagnostic ureteroscopy. An infectious complication was defined as an infection with fever ($\geq 38^{\circ}\text{C}$) occurring, or positive culture in blood or urine, or urosepsis within one month of follow-up. We calculated that kind of AP and the incidence of infectious complication with respect to each procedure and attempted to find the risk factors.

Results: AP was totally used in 456 (93.3%) cases of all. Fluoroquinolone was the most popular antibiotics of them all. There were 17

UP.244, Table 1.

| | Survived EPN | Died from EPN | P |
|-------------------------------------|--------------|---------------|-------|
| Male/Female | 4/12 | 1/5 | 0.173 |
| Age | 55.2±9.9 | 51.0±19.0 | 0.802 |
| Diabetes mellitus | 14 | 3 | 0.143 |
| Location | | | 0.525 |
| Left | 10 | 3 | |
| Right | 4 | 1 | |
| Bilateral | 2 | 2 | |
| Systolic Blood Pressure | 120.7±24.0 | 106.2±29.8 | 0.231 |
| Diastolic Blood Pressure | 74.1±14.4 | 67.5±12.0 | 0.294 |
| Heart Rate | 102.7±9.5 | 107.3±4.9 | 0.098 |
| Respiratory Rate | 21.3±1.9 | 25.8±4.8 | 0.083 |
| Body temperature | 37.7±0.8 | 38.1±0.9 | 0.407 |
| Symptoms duration | 5.1±3.5 | 7.3±4.2 | 0.178 |
| White Blood Cell count | 16.6±8.8 | 20.0±5.3 | 0.294 |
| Hemoglobin | 10.5±1.7 | 9.8±2.3 | 0.407 |
| Platelet count | 146.2±32.2 | 74.7±42.5 | 0.001 |
| Serum Glucose | 287.4±147.3 | 332.0±168.5 | 0.590 |
| Serum Creatinine | 2.8±2.1 | 2.9±1.6 | 0.494 |
| Serum Albumin | 2.9±0.5 | 2.6±0.4 | 0.134 |
| Prothrombin Time | 13.3±4.2 | 19.2±8.7 | 0.021 |
| Partial Thromboplastin Time | 36.5±20.7 | 62.1±44.2 | 0.134 |
| Sepsis | 11 | 5 | 0.494 |
| Shock | 1 | 4 | 0.03 |
| DIC | 5 | 3 | 0.416 |
| Organism | | | 0.839 |
| <i>E. coli</i> | 12 | 5 | |
| <i>Pseudomonas</i> | 1 | 0 | |
| <i>Klebsiella</i> | 2 | 1 | |
| <i>Proteus</i> | 1 | 0 | |
| Huang and Tseng Classification | | | 0.073 |
| Class 1 | 3 | 0 | |
| Class 2 | 8 | 0 | |
| Class 3A | 1 | 2 | |
| Class 3B | 2 | 2 | |
| Class 4 | 2 | 2 | |
| Treatment | | | |
| Antibiotics alone | 4 | 1 | 1.0 |
| Antibiotics with Percutaneous drain | 7 | 1 | 0.351 |
| Antibiotics with Ureteral stent | 2 | 0 | 1.0 |
| Antibiotics with Nephrectomy | 3 | 4 | 0.054 |

(3.7%) infectious complication cases after all of procedures, they were the highest incidence by 7 cases (6.0%) after percutaneous nephrostomy. Bacteriuria, hydronephrosis, whether or not ureteral stent, or nephrostomy, or foley catheterization prior to examination or treatment was an independent risk factors for infectious complication (p-value <0.05).

Conclusion: Fluoroquinolone was the most popular in AP and the incidence of infectious complication was the highest after percutaneous nephrostomy. Bacteriuria, hydronephrosis, whether or not ureteral stent, or nephrostomy, or foley catheterization prior to examination or treatment was an independent risk factors of infectious complication after endourologic procedures of the upper urinary tract.

UP246

Patients with Struvite Stones Need to Be Extensively Investigated: Experience from a Metabolic Stone Clinic

Shah S, Somani B, Cook P

University Hospital Southampton NHS Trust, Southampton, UK

Introduction and Objectives: At our institution patients are referred to the metabolic stones clinic for extensive metabolic evaluation if they are in a high-risk category. This includes patients <25 years, recurrent stone formers, presence of bilateral stones, single kidney, nephrocalcinosis, inflammatory bowel disease or other malabsorption syndrome, those with the metabolic syndrome phenotype and non-calcium oxalate stones. We investigated whether extensive metabolic evaluation is appropriate in patients where stone analysis has demonstrated struvite (an indicator that infection has played a significant part in the aetiology of the stone). **Materials and Methods:** All patients referred to the metabolic stone clinic over a 3-year period (October 2010 – October 2013) who had stone analysis and whose stone contained struvite were included. Results of their metabolic

evaluation were reviewed. Urinary metabolic evaluation at our centre includes random cystine, pH, TmPGFR and a 24-hour urine collection for creatinine, calcium, oxalate, citrate, urate, magnesium and sodium.

Results: Ten patients were identified. Six (60%) had biochemical abnormalities. The breakdown of biochemical abnormalities in the remaining patients were: primary hyperparathyroidism (1), incomplete distal renal tubular acidosis secondary to medullary sponge kidneys (1), incomplete distal renal tubular acidosis secondary to acetazolamide (1), idiopathic hypercalciuria (2), salt and protein induced hypercalciuria, hyperoxaluria and hyperuricosuria (1). Two patients with biochemical abnormalities had stone constituents not typically associated with infection (calcium oxalate and brushite) compared to one patient with calcium oxalate who had no biochemical abnormalities.

Conclusions: Extensive metabolic evaluation in patients with struvite stones is worthwhile. The presence of other stone components not typically associated with infection is not helpful in refining which patients with struvite stones should be investigated further.

UP251

Risk Factors and Indications of Febrile Complications after Shockwave Lithotripsy

Kim S¹, Kim Y¹, Park K¹, Huh J¹, Sohn D²

¹Dept. of Urology, Jeju National University, Graduate School of Medicine, Jeju, South Korea;

²Dept. of Urology, The Catholic University of Korea, School of Medicine, Seoul, South Korea

Introduction and Objectives: To date, there is a controversy about whether it is useful of antibiotic prophylaxis (AP) of patients with urinary lithiasis for extracorporeal shockwave lithotripsy (ESWL). We investigated a retrospective analysis of febrile complications and its risk factors after ESWL, focusing on AP.

Materials and Methods: Between 2009 and 2013, we studied in 1211 cases for patients

with urinary lithiasis for ESWL. Because stone analyses were not available in most of patients, management of stones larger than 2cm in diameter were ruled out from this analysis to minimize the ratio of infected stones as a possible cause for postprocedural fever. And in case of several times of ESWL in the same patient, the procedure was considered by another case respectively. In this analysis, 985 cases were enrolled. The outcome included positive urine culture, size and site of urinary lithiasis, counts of ESWL, the administration of AP, catheterization before ESWL, and clinical symptoms like fever >38°C or chilling.

Results: There were 58 cases (5.9%) of asymptomatic bacteriuria, 23 cases (2.3%) of febrile complications, 3 cases (0.3%) of urosepsis and 11 cases (1.1%) of the administration of AP. Positive urinary culture, previous symptomatic urinary tract infection (UTI), a indwelling nephrostomy tube or ureteral stent during the procedure, renal stone or upper ureter stone, and count of ESWL more than second times were independent risk factors for febrile complication (P<0.05, P<0.001). Foley catheterization for ESWL, stone size, mid and lower urinary stone were not associated with increased risk of fever after ESWL.

Conclusion: In this study, the rate of febrile complication after ESWL and asymptomatic bacteriuria were very low. Therefore AP is not indicated in all patients. Selective AP is recommended in patients who present with risk factors above mentioned in results.

UP252

Comparison of the Clinical Parameters of Men with Impaired Arterial Blood Supply to the Pelvis Due to Different Etiologies

Kogan M, Belousov I

Rostov State Medical University, Rostov-on-Don, Russia

Introduction and Objectives: Persistent pain and high incidence of lower urinary tract

UP252, Table 1.

| Characteristic | Group 1 | Group 2 | Voluntary |
|--|-------------------|-------------------|-------------------|
| % patient with Persistent Pain | 73.4 | 92.0 | - |
| Intensive of Pain, Me (LQ; UQ) points. | 5.0 [3.5; 7.0] | 5.0 [3.0; 6.0] | - |
| % patient with LUTS | 54.8 | 84.0 | - |
| Score of symptoms, Me (LQ; UQ) points. | 8.5 [5.7; 14.0] | 14.0 [9.0; 19.0] | - |
| Correlation between the I-PSS and VAS | 0.25 – 0.75 | 0.61 – 0.87 | - |
| Vmax (R), Me (LQ; UQ) cm/sec | 11.9 [8.8; 15.9] | 7.1 [6.1; 8.1] | 19.6 [17.4; 21.9] |
| Vmax (L), Me (LQ; UQ) cm/sec | 11.4 [8.4; 16.5] | 6.7 [5.2; 8.5] | 20.6 [19.2; 22.6] |
| Ri (R), Me (LQ; UQ) | 0.63 [0.58; 0.70] | 0.70 [0.64; 0.74] | 0.62 [0.62; 0.64] |
| Ri (L), Me (LQ; UQ) | 0.64 [0.57; 0.73] | 0.68 [0.62; 0.73] | 0.62 [0.61; 0.64] |
| Correlation between the PI and Vmax | 0.276 | 0.783 | - |
| Comment: Vmax - peak systolic velocity of arterial flow in right (R) and left (L) capsular prostatic artery. Ri - vascular resistance index. | | | |

symptoms (LUTS) are common in patients with non-inflammatory chronic pelvic pain syndrome (CPPS IIIB). The mechanisms of development of these symptoms are not well established. We earlier demonstrated that pelvic blood flow and supply are affected in patients suffering from CPPS III B.

Materials and Methods: The clinical data of patients with CPPS III B (Group 1), mean age 32, ranging 27 to 37, with average duration of disease of 4.0 years (range 2.5 - 6 years) was compared to men with systemic atherosclerosis and occlusive lesions of the common and internal iliac arteries (Group 2), mean age 45, ranging 42 to 49, with average duration of disease of 5 years, range 3.5-8 years. Pain was evaluated using a visual analog scale (VAS). LUTS were assessed using I-PSS questionnaires. All patients underwent Transrectal Color Doppler of the prostate (TCD). A group of healthy volunteers also underwent TCD. Data are presented as Median (Me) value with interquartile range: Lower Quartile (LQ), Upper Quartile (UQ).

Results: The results are presented in the Table 1.

Conclusion: From the data presented above, we established the similarity of clinical parameters in patients with CPPS III B and patients with established atherosclerotic disease. Both groups demonstrate deficiency in the intraprostatic blood flow. The presence of correlation between symptoms and decreased arterial blood flow to the prostate supports the proposed ischemic etiology of pelvic pain and LUTS.

UP.253

Urogenital Tuberculosis in a Region with a High Prevalence of Human Immunodeficiency Virus Infection and Multi-Drug Resistant Tuberculosis

Ackermann H^{1,2}, Bonkat G^{1,2}, Heyns C¹, Zarabi A¹, Smit S¹, van der Merwe A¹

¹Dept. of Urology, Stellenbosch University and Tygerberg Hospital, Tygerberg, South Africa;

²Dept. of Urology, University Hospital Basel, Basel, Switzerland

Introduction and Objectives: Data on urogenital tuberculosis (UGTB) are scant. The objective of the present study was to describe the clinical characteristics of patients with UGTB in a region with a high prevalence of human immunodeficiency virus (HIV) infection.

Materials and Methods: A retrospective review was performed of the clinical records of 84 patients seen at our institution (an academic tertiary care centre) from July 2007 to March 2014 with a confirmed diagnosis of UGTB. Acid-fast bacilli (AFB) smear, urine tuberculosis culture, urine tuberculosis polymerase chain reaction (PCR), and histopathologic findings were used for patient selection.

Results: The median age of patients was 42.3 years (range 13.4 to 79.6). The male to female ratio was 3:1. The median time from initial

presentation to definitive diagnosis of UGTB was 5.3 weeks (range 0.1 to 286.6). Concomitant TB affected the lungs (46.4%), abdomen and skeletal system (both 4.8%), brain (3.6%), and lymph nodes (2.4%). Thirty-five (42.2%) patients were HIV-positive. Multi-drug resistant (MDR) Mycobacterium tuberculosis was identified in 11.9% of the patients. The most common organs involved were the kidneys (48.8%), the testis/epididymis (48.8%), the ureter (33%) and bladder (25%). In 42 patients (50%) more than one organ system was involved. Multi-drug therapy was given for a mean of 6.6 months (range 6 to 24) in all patients. Procedures related to UGTB included orchidectomy (20.2%), ureteral stent insertion (16.7%), nephrostomy placement (15.5%), nephrectomy (8.3%), ureteral dilatation (6%), and cystoplasty (2.4%). Eight (9.5%) patients died during follow-up.

Conclusion: UGTB is a destructive disease in which surgery still plays an important part. More than one organ of the urogenital tract is frequently affected highlighting the need for both a strong awareness of such possibility and thorough initial clinical examination. UGTB remains a potentially lethal disease, especially when associated with HIV and MDR infection.

UP.254

Cystoscopy in the Investigation of Recurrent Urinary Tract Infections in Women

Payne S¹, Oades G²

¹University of Glasgow, Glasgow, Scotland,

UK; ²Southern General Hospital, Glasgow, Scotland, UK

Introduction and Objectives: Recurrent urinary tract infection (rUTI) is a major health burden in general urology practice as well as in the community. EAU do not recommend the routine investigation of women with rUTI with cystoscopy. Despite this, a large number of women with rUTI are investigated with cystoscopy. The aim of this study was to investigate the role of cystoscopy in the investigation of recurrent urinary tract infections in women.

Materials and Methods: A retrospective review of consecutive cases within a single institution was carried out. All women undergoing their first cystoscopy to investigate recurrent urinary tract infection (rUTI) over a 12 year period from January 1997 to May 2011. Female patients with a diagnosis of recurrent urinary tract infection who had a cystoscopy as part of their investigation were included.

Results: A total of 2503 patients were identified. Forty patients (1.6%) had significant pathology (mean age 54.3 years; range 18-94 years). Five patients (0.2%) had malignant lesions, of which 3 were TCC, 1 SCC and 1 metastatic caecal carcinoma. All 5 patients were aged over 65 (68-94 years). A further 35 patients had significant abnormalities (range

18-87 years), with 22 having a urethral stricture requiring urethral dilatation, 4 had a ureterocele, 2 had foreign bodies within the bladder, 2 had calculi, 2 had colovesical fistula, 1 had evidence of a duplex system, one had evidence of schistosomiasis and one had a urogenital sinus.

Conclusion: Cystoscopy should not be used in women under the age of 65 as a routine investigation for rUTI. Although very few malignancies were found in the older population, cystoscopy may still be warranted in this group of patients.

UP.255

Emphysematous Pyelonephritis:

A 25-Case Series

Hadj Slimen M, Fourati M, Rebai N, Touaiti T, Bouacida M, Smaoui W, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: Emphysematous pyelonephritis (EPN) is a severe, acute necrotizing infection with formation of gas in the collecting system, renal parenchyma and perirenal tissues. It is a life-threatening condition with a high mortality rate. We studied herein its diagnosis, differential diagnosis, surgical treatment and its outcome.

Materials and Methods: We reviewed retrospectively analysis of clinical records of 25 patients, treated for emphysematous pyelonephritis, between 1985 and 2013.

Results: The mean age was 46 years with female predominance (sex ratio 0.22). All patients are diabetics. Infections of the upper urinary tract were present in 18 cases. Renal stones are seen in 19 cases. The commonest clinical presentation was lumbar pain (100%), dysuria (85%). Urine culture identified Klebsiella pneumoniae in 56% of cases, Escherichia Coli, Proteus Mirabilis and Candida Albicans in each case respectively. Plan X-ray film realized in all cases, showed renal stones in 76% of cases. Computed tomography scan confirmed diagnosis. It showed gas in the collecting system, renal parenchyma, and it performed VAN classification: type I (14 cases) type II (11 cases). Treatment consisted of antibiotic therapy followed by nephrectomy for 12 patients. Two patients of this group died. The second group was treated by ureteral stent. Four Patients died from this group.

Conclusion: EPN is a rare necrotizing infection with high mortality and morbidity. Uncontrolled diabetes and urinary tract obstruction play important role in the development of EPN. CT is the modality of choice in the diagnosis and classification of EPN. Treatment options are based on antibiotics, percutaneous drainage and relief of obstruction if present. However surgical intervention should not be delayed in patients who do not substantially improve on medical treatment or who have signs of organ failure.

UP256

The Importance of the Presence of Accessory or Crossing Vessels in the Anatomy of Pelvi-Ureteric Junction Obstruction (PUJO) in a Modern Series of Patients Undergoing Pyeloplasty

Drinnan N, Ni Raghallaigh H, Chetwood A, James P, Emara A, Barber N
Frimley Park Hospital, Surrey, UK

Introduction and Objectives: Historically, crossing vessels (CV) have been thought to play a relatively minor role in pathophysiology of Pelvi-Ureteric-Junction obstruction (PUJO). We describe our experience of performing dismembered pyeloplasty over 7 years to determine the incidence of CVs in the context of PUJO requiring surgical intervention.

Materials and Methods: In total, 90 patients underwent pyeloplasty. All were symptomatic or had demonstrable loss of function from the affected renal unit. Pre-operative imaging included IV or CT urography, retrograde ureteropyelography and MAG-3 renography. We prospectively collected radiological evidence of CVs associated with PUJO. This was correlated with true anatomy as seen *in vivo*.

Results: The likely presence of CVs was rarely reported in any form of imaging. At operation CVs were present in 49% of cases; 56.8% of which had an artery and vein, 37.8% artery only and 5.4% vein only. As such, an artery confers a 60% chance of an associated vein, but a vein confers a 91% chance of an associated artery. The highest proportion (67%) of CVs were found in the 15-25 year old subgroup; the lowest proportion (36%) in the 45-65 year old group.

Conclusion:

- Our data suggests the incidence of CVs associated with PUJO is higher than previously thought, particularly in young patients.
- A crossing vein confers a high likelihood of an associated artery, while an artery may or may not suggest a co-existent vein.
- Pre-operative imaging does little to report such abnormalities and extra care should be taken in identifying vessels at the time of pyeloplasty.

UP257

Urinary Malakoplakia: About 13 Cases

Fourati M, Hadj Slimen M, Rebai N, Chaabouni A, Touaiti T, Smaoui W, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: Malakoplakia is an unusual chronic inflammation characterized macroscopically by pseudotumoral lesions and histologically by the presence of "Michaelis-Gutman" bodies in macrophages.

Methods and Materials: We report 13 cases of urinary malakoplakia collected during a period of 24 years (1989- 2013). We study the epidemiological, topographical, clinical, paraclinical,

therapeutic and evolutionary aspects.

Results: The sex ratio was 0.6. The average age was 49 years (3-81). Malakoplakia was involving kidney (8 cases), both ureters (1 case) and bladder (4 cases). Clinical symptoms were based on the seat of the disease: it is manifested by fever and lumbar painful syndrome for renal location, obstructive acute renal failure for bilateral ureteral location, cystitis in 2 cases. Treatment consisted, for kidney locations in nephrectomy (5 cases), among which two extended and two partial, and medical treatment based on cholinergic, vitamin C and antibiotics (1 case). For bladder locations, partial cystectomy was performed in 2 cases, trigonectomy and ureterovesical reimplantation in one case; the fourth patient had a peritoneal lavage with biopsies of necrotic and infected bladder tumor, which confirmed the diagnosis. Adjuvant medical treatment was introduced in all cases. For bilateral ureteral location, a first drainage by percutaneous nephrostomy was performed followed by a bilateral ureteral reimplantation, the postoperative course was uneventful.

Conclusion: Urinary malakoplakia remains a disease with no specific clinical and radiological signs. Diagnosis confirmation can be histological. Medical treatment, sometimes sufficient, cannot be initiated if we have not precise diagnosis. It can also replace surgery, which can be sometimes mutilating.

UP258

Intravesical Sodium Chondroitin Sulphate in Prevention of Recurrent Bacterial Cystitis: Validation, Efficacy and Development of Practice

Marri R, Housami F, Scott J, Lamb G
Forth Valley Royal Hospital, Larbert, UK

Introduction and Objectives: Recurrent urinary tract infections (UTI) constitute a significant proportion of referrals to secondary care. Multidrug bacterial resistance has questioned the use prophylactic long term antibiotics resulting in interest in alternative interventions targeting interactions between bacteria and bladder wall lining. This retrospective study examines the efficacy of intravesical sodium chondroitin sulphate (ICS) instillations in real practice in prevention of UTI and compares this to a pilot group of patients self-administering instillations at home.

Materials and Methods: Between November 2012 and May 2013 thirty four consecutive patients with recurrent UTI and normal baseline ultrasound, flexible cystoscopy and resistant to conservative measures were recommended for ICS instillations. Six doses of 2% ICS were instilled at weekly intervals. Subsequently data was collected regarding number of proven UTIs in one year before instillation, one year after instillation and symptomatic benefit to patients. A pilot group of three patients self-administered

instillations.

Results: Median number of UTIs per patient in twelve months prior to instillation was 4 (range 1-14 UTIs). The median number of UTIs per patient in one year after the instillations was 2 (range 0-10 UTIs). Eleven patients (32%) noted fifty percent reduction in number of proven UTIs in one year. Seven patients had symptoms of UTI but had no bacterial growth on midstream specimen of urine cultures. Fourteen patients (41%) had symptomatic benefit from the instillations. All patient who self-administered the instillations had good results. However the number in this group is too small to draw conclusions.

Conclusion: Intravesical instillations can prevent recurrent UTI in a selected group of patients. Further studies are required to identify which patients are more likely to gain benefit in order to develop treatment protocols. Pilot data would suggest that it is possible for patients to self-administer treatment with similar efficacy.

UP259

Chronic Bacterial Seminal Vesiculitis Occupies Some Portion of Chronic Prostatitis/Chronic Pelvic Pain Syndrome

Park S, Ryu J, Choo G, Seong D, Yoon S, Suh J, Park W, Lee T

Inha University School of Medicine, Incheon, South Korea

Introduction and Objectives: To document bacterial infection in seminal vesicles by bacteriologic examination and radionuclide imaging in men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS).

Materials and Methods: The study included 50 patients with CP/CPPS who showed hot uptake in seminal vesicles on Tc-99m ciprofloxacin imaging and 8 patients who did not show hot uptake. The evaluation included the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) and four-glass test. In all subjects, transperineal aspiration of seminal vesicle fluid under the guidance of transrectal ultrasonography and bacteriologic examination was done.

Results: Of the 50 patients who showed hot uptake in the seminal vesicles on the isotope study, microorganisms were isolated from seminal vesicle fluid in 17 patients (positive predictive value, 34%). The most common causative organisms were *Escherichia coli* in 13 patients (26%), followed by coagulase-negative *staphylococcus* species in 2 patients (4%), *Enterococcus faecalis* in 1 patient (2%), and *Chlamydia trachomatis* in 1 patient (2%). No microorganisms were isolated in the 8 patients who did not show hot uptake in the seminal vesicles (negative predictive value, 100%). However, there were no significant differences in NIH-CPSI total scores and subscores on the basis of culture results of the seminal vesicle fluid.

Conclusions: CBSV (chronic bacterial seminal vesiculitis, or CBSV) may occupy a considerable portion of CP/CPSPs although the clinical implication of the disease remains to be further investigated.

UP.260

Study on Urinary IL-33 and Galectin-3 Levels in Interstitial Cystitis

Kochiashvili G, Kochiashvili D

Dept. of Urology, T.S.M.U., Tbilisi, Georgia

Introduction and Objectives: Interstitial cystitis (IC) is an enigmatic chronic disorder characterized by vague bladder pain of variable severity accompanied by urinary symptoms. The pathogenesis and etiology of IC remain incompletely defined. However, there is an emerging consensus about the central role of epithelial dysfunction, bladder sensory nerve up-regulation, and mast cell activation in the genesis of IC. Accumulating evidences have suggested that tissue damage is recognized at the cell level via receptor-mediated detection of intracellular proteins released by the dead cells. Among these proteins IL-33 and galectin-3 may have an important role because they can be participated as cellular components that stimulate the immune system when they leave their usual intracellular location during either cell activation or cell death.

Materials and Methods: We measured IL-33 and galectin-3 in 24-hour urine specimens from patients with IC and healthy controls. Study participants included 24 female patients with IC and 18 ages matched female volunteers. ELISAs were used to determine levels of IL-33 and galectin-3.

Results: We have found that the levels of both proteins, IL-33 and galectin-3, were significantly increased in IC. The level of the IL-33 in the urine of healthy women was equal to 5.083 ± 0.041 pg/ml, while the level of IL-33 in patients increases up to 7.21 ± 0.063 pg/ml. Further, the amounts of urine galectin-3 were also elevated in IC patients as compared to healthy subjects (20.8 ± 3.4 ng/ml – healthy subjects; 30.24 ± 3.4 ng/ml – patients with IC).

Conclusion: These data suggest on the participation of IL-33 and galectin-3 in the inflammatory response of the bladder in IC.

UP.261

Comparison of Multipledrug Resistant Pathogen in Urinary Tract Infection by Age and during the Last 5 Years in Korea

Kim K, Lee K

Dept. of Urology, College of Medicine, Dongguk University, Gyeongju, South Korea

Introduction and Objectives: Escherichia coli (E. coli) is the most notable pathogen that results in a frequently diagnosed community-acquired infection, the urinary tract infection (UTI). The recommended first line agents for

uncomplicated UTI include sulfamethoxazole/trimethoprim (SMX-TMP) or nitrofurantoin-2-5. However, decreasing susceptibilities of common pathogens to these pharmacologic agents for the treatment of UTIs has complicated empiric drug therapy decisions. The aim of this study was to assess the resistance patterns of uropathogens during the last 5 years in patients with acute pyelonephritis.

Materials and Methods: A total of 493 patients were hospitalized in departments of Dongguk University hospital in Korea due to the first UTI between January 2007 and July 2013. Of these, only 165 patients fulfilled inclusion criteria of the study. Uropathogens resistance to commonly usable anti-microbial agents (ampicillin, a combination of sulphamethoxazole and trimethoprim, cephalexin, ceftriaxone, cefotaxime, ceftazidime, gentamicin, amikacin, ciprofloxacin, imipenem and nalidixic acid) was retrospectively studied in patients treated during early (2007-2010) and late (2011-2013) study periods. Patients were classified into two groups: patients with less than 50 year were assigned to Group 1 (n=45), and those with more than 50 year were assigned to Group 2 (n=120). Anti-bacterial susceptibility testing of the urine isolates was performed by the standard disc diffusion method.

Results: Patients were treated during early (n=45) or late (n=120) study period due to the first episode of acute pyelonephritis. Escherichia coli was the most common bacterial pathogen (85.5%). Compared to patients less than 50 year, older patients had higher degree of anti-bacterial resistance to cefoxitin, ciprofloxacin, levofloxacin during late study period (0.0% vs. 30.2%, p=0.006, 15.4% vs. 54.5%, p=0.022, 11.1% vs. 44.7%, p=0.019). Also, multidrug resistance was more common in patients more than 50 year during the late study period (26.3% vs. 70.0%, p=0.002). There were no statistically significant differences between the two groups in characteristic variables. Antibacterial resistance to Gentamicin and Piperacilline/Tazobactam were more common in patients treated late during the study period than early (20.5% vs. 37.9%, p=0.027, 6.8% vs. 35%, p<0.001). Multidrug resistance was more common in patients treated late during the study period than early (31.0% vs. 58.0%, p=0.001).

Conclusion: Our study has demonstrated the progressive increase in anti-microbial resistance in patients with first UTI during the period 2011-2013. High prevalence rate of ESBL(+) uropathogens and multi-drug-resistance is of great concern.

UP.262

Platelet Volume Indices in Patients with Varicocele

Mahdavi-Zafarghandi R¹, Shakiba B¹, Karamati M², Tavakkoli M¹

¹Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran;

²Cancer of Molecular Pathology Research Center, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Some evidence showed an association between systemic varicose and varicocele. Also, there is a positive association between varicocele and coronary artery ectasia. This may bring the existence of common mechanisms to mind. On the other hand, it has been shown that the platelet size reflects its activity and platelet volume indices (PVI) particularly mean platelet volume (MPV), is demonstrated to increase in vascular disorders. This study sought to evaluate platelet volume indices (mean platelet volume (MPV), platelet distribution width (PDW), and platelet large cell ratio (P-LCR)) in varicocele patients, and compare it with platelet volume parameters in healthy controls.

Methods: This cross-sectional study involved 2 groups: Group 1 included 51 varicocele subjects and Group 2 consisted of 50 healthy control subjects of similar ages. The following subjects were excluded from the study: Subjects with history of coronary artery disease, peripheral vascular disease, diabetes mellitus, hypertension, testicular tumor, hydrocele, undescended testis, inguinal hernia, epididymo-orchitis, inguinal and scrotal surgeries, splenectomy, Thrombotic thrombocytopenic purpura (TTP), Idiopathic thrombocytopenic purpura (ITP), and thrombocytopenia (less than $150 \times 10^6/\mu\text{l}$) or thrombocytosis (more than $450 \times 10^3/\mu\text{l}$). Platelet volume parameters (MPV, PDW, and P-LCR) were measured in both groups within 2 hours of sampling. The differences between groups were evaluated by independent sample T test.

Results: Mean PDW, MPV, and P-LCR were $13.9 \pm 2.5\%$, 10.1 ± 1.3 fl and $27.3 \pm 7.8\%$ in varicocele patients respectively and were $12.6 \pm 2.4\%$, 9.3 ± 1.1 fl and $21.9 \pm 6.4\%$ in control group, respectively. There were significantly higher mean PDW, MPV, and P-LCR in varicocele group compared with control group (Pvalue<0.05).

Conclusion: Larger platelets are haemostatically more active and are a risk factor for developing vascular disease. Present study suggested that vascular components may have important role in pathophysiology of varicocele; therefore, there is a great need for prospective studies to confirm this relationship.

UP.263

A New Brand Rat Model for Varicocele for Infertility Research

Zhang L^{1,2}, Kim H^{1,2}, Choi B^{1,2}, Zhao C^{3,4}, Lee S⁵, Moon D⁶, Park K⁷, Park J⁷

¹Dept. of Urology, Chonbuk National University

Medical School and Institute for Medical Sciences, Chonbuk National University, Jeonju, South Korea; ²Biomedical Research Institute and Clinical Trial Center for Medical Devices of Chonbuk National University Hospital, Jeonju, South Korea; ³Dept. of Urology, Renji Hospital, Shanghai Jiao Tong University Medical School, Shanghai, China; ⁴Shanghai Institute of Andrology, Shanghai, China; ⁵Dept. of Urology, Sungkyunkwan University Medical School, Seoul, South Korea; ⁶Dept. of Urology, Korea University Medical School, Seoul, South Korea; ⁷Dept. of Urology, Chonnam National University Medical School, Kwangju, South Korea

Introduction and Objectives: Researchers have tried to create the varicocele model for having with varied success. To recreate a consistent varicocele model by exploring the anatomic variability of the testicular-spermatic venous system in Sprague-Dawley (SD) rats.

Materials and Methods: Seventy-two sexually mature SD male rats were randomly divided into three groups containing 24 rats per group. Partial ligation of the left renal vein and internal spermatic vein (ISV) communicating branches to common iliac vein and ISV communicating branches ligation (Park and Zhang's method) or partial ligation of the left renal vein and ISV communicating branches ligation (RVISVCB). We evaluated the results by sperm analysis, apoptotic index, spermatogenic cell density, Johnsen's score, ischemic damage and degree of seminiferous tubule destruction.

Results: The results showed that the mean diameter of the left ISV was significantly increased in the Park and Zhang's method group compared to the control and RVISVCB groups (p -value < 0.001). Using ISV as the reference, the sensitivity of varicocele was 71.43%, and the specificity was 80%. Additionally, the positive predictive value was 83.33%, and the negative predictive value was 66.67%. Sperm count, motility and the apoptotic index were lower in the RVISVCBCIV group compared to the control (p -value < 0.01) and RVISVCB groups (p -value > 0.05). The spermatogenic cell density was higher in the control group compared to both the RVISVCB and Park and Zhang's method groups (p -value < 0.001). In RVISVCBCIV group, the high grade damage in the left testis accounts for 62%, which is higher than the RVISVCB and control group (41% and 11%, respectively). In Johnsen score, tower score in the left testis was shown in the RVISVCB (8.03 ± 0.19 , < 0.05 vs. control) and RVISVCBCIV (6.87 ± 0.16) group compared with control group (8.26 ± 0.15 , < 0.01 vs. control).

Conclusions: The Park and Zhang's method may be more effective for a establishing a varicocele induction model.

UP.264

Semen Parameter and Age-Specific Changes between Recent Two Decades

Cho I, Kim Y, Kim S, Kim S, Min S
National Police Hospital, Seoul, South Korea

Introduction and Objectives: We analyze the trend of overall and age-specific changes in the semen quality of Korean men between the 2000s and 2010s.

Materials and Methods: A total 354 semen samples were collected from Korean men presenting for infertility or varicocele, other infectious problems in two decades, between January 2002–December 2003 and January 2012–December 2013. The diagnoses of patients were 25 infertilities, 62 varicoceles and 73 other infectious diseases, which were orchitis, chronic prostatitis, etc, in 2000s, and 54 infertilities, 94 varicoceles, 46 other infectious diseases, in 2010s, respectively. A standard WHO procedure for semen analysis was performed that included assessment of pH, volume, sperm concentration, and percentage motility and morphology.

Results: A total of 160 men constitute the study population in the 2000s (from 2002 to 2003), while data on 194 men were collected in the 2010s (from 2012 to 2013). The mean age in the study populations are 25.44 (± 8.12) and 30.30 (± 9.31) in the 2000s and the 2010s, respectively ($p < 0.05$). The overall sperm parameter results suggested that there has been a significant decrease in semen volume (4.42ml vs. 2.93ml), sperm concentration (74.68 million/ml vs. 61.04 million/ml), motility (64.74% vs. 54.26%), morphology (50.10% vs. 77.68%), in the 2010s when compared with the 2000s ($p < 0.05$), except for pH (8.08 vs. 8.02). Negative correlations were observed in all semen parameters with increasing age in all patients, except for pH. And semen volume, motility and morphology had higher negative correlation coefficients with age, in the 2010s, compared to those in the 2000s (Table 1). Follicle stimulating hormone (FSH, 5.10 μ IU/ml vs. 4.21 μ IU/ml) and Testosterone (7.95 ng/ml vs. 5.711 ng/ml) had significant differences between two decades ($p = 0.006$, $p = 0.016$, respectively), but Leuteinizing hormone (LH, 4.44 μ IU/ml vs. 4.06 μ IU/ml) did not.

Conclusion: There are significant changes in

semen parameters of Korean men between the recent two decades, and the age related correlation coefficients in semen volume, motility and morphology showed higher negative in the 2010s, compare with those in the 2000s.

UP.265

Spectrum of Mutations in CFTR Gene in Indian Infertile Males with Congenital Absence of Vas Deferens

Sharma H, Singh S, Mavuduru R, Prasad R
Post Graduate Institute of Medical Education and Research, Chandigarh, India

Introduction and Objectives: The majority of males affected with Cystic Fibrosis (CF) are infertile due to high incidence of mutated Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene, leading to congenital bilateral absence of vas deferens (CBAVD) and is considered as genital form of Cystic Fibrosis. CF is considered as rare disease in Indian population. The present study was undertaken to find out the spectrum and frequency of CFTR gene mutations in Indian infertile male population with CBAVD.

Materials and Methods: Blood samples from infertile males with CBAVD (n=60) and healthy control (n=100) were used for genomic DNA isolation. Screening of mutations in 27 exons of CFTR gene was carried out by single stranded conformational polymorphism (SSCP) analysis. Delta F-508, N1303K, R553X, G551D, G542X, 621+1G>T and W1282X were the other known most common mutation screened in Indian infertile males through allele specific ARMS PCR analysis. IVS8-Poly T allele polymorphism was also determined in all infertile male patients.

Results: Spectrum CFTR gene mutation was heterogenous. Out of 60 CBAVD males 49 (81%) were found to have mutation in CFTR gene. Delta F-508 (26.6%) and R11H (6.6%) were the most common mutations identified in Indian infertile male population. IVS (8) 5T allele was found with allelic frequency of 28.3%. Novel CFTR mutations were also identified in exon 4 and 11 viz., G126S, S118P, M281R and A141G.

Conclusion: There is molecular heterogeneity of CFTR mutations in Indian CBAVD male population. Exon 4 and Exon 11 are hot

UP.264, Table 1. Correlation between semen parameters and age in the two decades

| Parameter | 2000s | | 2010s | |
|--------------------------------------|----------------------|---------|----------------------|---------|
| | Correlation with age | p-value | Correlation with age | p-value |
| pH | -0.167 | 0.036 | 0.153 | 0.036 |
| Volume, ml | -0.199 | 0.012 | -0.304 | 0.000 |
| Concentration, X 10 ⁶ /ml | -0.910 | 0.273 | -0.900 | 0.238 |
| Motility, % | -0.232 | 0.004 | -0.243 | 0.001 |
| Morphology, % | 0.226 | 0.005 | -0.237 | 0.002 |

spot regions for mutations in these patients and suggested to be screened in infertile male patients willing to opt for assisted reproductive technology.

UP.266

Varicocele is associated with Varicose Vein: A Population-Based Case-Control Study

Chen S¹, Chiu A²

¹Taipei City Hospital Renai Branch, Taipei, Taiwan; ²National Yang-Ming University, Taipei, Taiwan

Introduction and Objectives: To analyze the association between patients with varicocele and varicose vein in Taiwan using a population-based case-control study.

Materials and Methods: Between 2001 and 2010, comprehensive data was collected on the characteristics of patients with varicocele and varicose vein in Taiwan via a retrospective nationwide population-based study. Data were obtained from the Taiwan National Health Insurance Research Database (NHIRD). A total of 2727 cases with varicose vein and 10908 randomly selected controls were included in this study. Conditional logistic regression analyses were used to examine the association between varicose vein and varicocele.

Results: The prevalence of varicocele was 1.3% and 0.3% for cases (with varicose vein) and controls (without varicose vein), respectively ($p < 0.001$). Conditional logistic regression analysis showed that the odds ratio (OR) of being previously diagnosed with varicose vein for cases was 4.71 (95% confidence interval [CI]: 2.87-7.89) when compared with controls after adjusting for age, diabetes, heart disease, chronic obstructive pulmonary disease, liver and kidney disease and edema. Furthermore, the OR was 5.96 (95% CI: 2.90-12.24), 4.76 (95% CI: 1.68-13.48) and 1.69 (95% CI: 0.30-9.55) in patients aged <50 , between 51-65 and aged >65 , respectively. In addition, the prevalence of male infertility was 15.1% for patients with varicocele and varicose vein, and 14.5% for patients with varicocele only, but no significant difference was noticed.

Conclusion: We identify an association between both varicocele and varicose vein. In addition, the association is higher in patients younger than 50.

UP.267

Second to Fourth Digit Ratio: A Predictor of Adult Testis Size

Kim T, Oh J, Kim K, Yoon S, Kim S

Dept. of Urology, Gachon University Gil Hospital, Incheon, South Korea

Introduction and Objectives: It has been suggested that second to fourth digit ratio (digit ratio) may correlate with male reproductive system function or disorders. This hypothesis is based on finding that the Hox genes control

finger development and differentiation of the genital bud during embryogenesis. Thus, we investigated the association between digit ratio and adult testis size.

Materials and Methods: A total of 172 men (aged 20 to 65 years) hospitalized for urological surgery were prospectively enrolled. Patients with conditions known to strongly influence testis size were excluded. Before determining testis size, the lengths of the 2nd and 4th digits of the right hand were measured by a single investigator using a digital vernier calliper. Using orchidometry, the testes were measured by an experienced urologist who had no information about the patient's digit ratio. To identify the independent predictive factors influencing testis size, univariate and multivariate analyses were performed using linear regression models.

Results: Age, height, serum testosterone and free testosterone level were not correlated with testis size. Digit ratio, along with weight, was significantly correlated with testis size (right testis size: $r = -0.185$, $p = 0.015$; left testis size: $r = -0.193$, $p = 0.011$; total testis size: $r = -0.198$, $p = 0.009$). Multivariate analysis using linear regression models showed that only digit ratio was the independent factor to predict all (right, left, and total) testis sizes (right testis size: $\beta = -0.174$, $p = 0.023$; left testis size: $\beta = -0.181$, $p = 0.017$; total testis size: $\beta = -0.185$, $p = 0.014$). **Conclusion:** Our findings demonstrated that digit ratio is negatively associated with adult testis size. This means that men with a higher digit ratio may be more likely to have smaller testis compared to those with a lower digit ratio.

UP.268

Malattributed Paternity

Drinnan N, Ni Raghallaigh H, Crawford R, Chetwood A, Emara A, Barber N
Frimley Park Hospital, Surrey, UK

Introduction and Objectives: Modern paternity testing cannot prove paternity but rather proves non-paternity, by excluding a genotype incompatible with that of the child. The investigations use DNA polymorphisms with probabilities of exclusion in excess of 99.99%.

Materials and Methods: Here we discuss the clinical and ethical implications of a situation where one or both parents are under the impression (wrongly) that a child has been fathered by the male partner, when the true biological father is in fact a separate third party. As Urologists we tend only to encounter this unusual situation during investigation for infertility, work up for transplant surgery and during genetic testing for diseases such as cystic fibrosis or inheritance disputes.

Results: Disclosing misattributed paternity has a number of different biological and social consequences and presents ethical and deontological challenges, centering on whether or not to inform the family and, particularly, whom in

the family. As such there is no consensus on a single, appropriate approach. While respect for autonomy does require revealing information pertinent to decision-making, if the putative father is found to be unrelated to the child there will be social inequalities in the repercussions between men and women. Salary gaps and societies' inequalities make it more difficult to exist as a single 'parent' female vs. single 'non-parent' male.

Conclusion: Here we explore the views of a number of psychologists to provide different approaches to facing this situation focusing on ethics and practical management steps to aid Urological practice.

UP.269

Seminal Parameters in Patients with Varicoceles: Impact of Clinical Presentation

El-Bahnasawy M¹, Fadl F², Balaha A³

¹Urology and Nephrology Center, Mansoura, Egypt; ²Dept. of Radiology, Alhasa Hospital, Alhasa, Saudi Arabia; ³Dept. of Clinical Pathology, Alhasa Hospital, Alhasa, Saudi Arabia

Introduction and Objectives: Controversy continues regarding impact of varicocele on the different seminal parameters and the possible bias in case of patients attending infertility clinics. Our aim is to compare different seminal parameters in patients presented for infertility versus those presented for testicular pain.

Materials and Methods: This study included 117 varicocele patients presented for infertility problems and 107 varicocele patients presented with testicular pain. All of them were assessed clinically, radiologically and laboratory by single observer each. Statistical analysis was done using Wilcoxon matched-pairs Signed-Ranks test and correlations were made using Spearman correlation coefficients.

Results: Mean age of pain group (31.7 ± 8.8 years) is significantly younger than the infertility group (34.3 ± 8 years) ($P = 0.02$). There were statistically significant higher sperm density, sperm motility and percentage of rapid motility in the pain group than infertility group ($P < 0.05$). Correlating the clinical and radiologic size of varicocele to seminal parameters showed that clinical grade 3 had significantly lower sperm density ($P = 0.006$) in the infertility group which was not seen in the testicular pain group. A weak inverse correlation was detected between ultrasound measured varicocele diameter and percentage of sperm motility in the infertility group ($R = -0.18$, $P = 0.05$) while such correlation was much more evident in the pain group ($R = -0.37$, $P = 0.008$). On the other hand bilateral varicoceles in the pain group showed significantly lower sperm density, lower sperm motility percentage and lower percentage of rapid forward motility than unilateral varicoceles ($P = 0.04$, 0.03 and 0.006 respectively). Such effect of laterality

was lacking in the infertility group. Moreover semen concentration was inversely correlated with ultrasound measured varicocele diameter ($R=-0.29$, $P=0.04$) in the pain group but not the infertility group.

Conclusions: Patients with varicoceles presented with pain have better semen parameters than those presented with infertility indicating involvement of further factors other than varicoceles. Clinical high grade varicocele has significant impact on sperm motility in the infertility group while the radiologic diameter was much more impacting semen parameters in the pain group. Bilaterality of varicocele significantly impact seminal parameters in the pain but not the infertility group.

UP.270

Does Anti-Oxidant Therapy Add Any Extra Benefit to Standard Inguinal Varicocelectomy in Terms of DNA Damage or Sperm Quality Factor Indices: A Randomized Study

Movahedin M¹, Mehraei A², Noori M², Dehghani S², Pourmand G², Ahmadi A², Pourhosein M², Hoseini M¹, Ziloochi M¹, Heidari F², Beladi L², Alizadeh F², Hemmatian M²

¹Dept. of Anatomical Sciences, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran; ²Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: Varicocele is the leading cause of male factor infertility, responsible for up to 40% and 80% of primary and secondary infertilities, respectively. Disturbance in oxidative stress, DNA damage and semen parameters has several possible factors that can also define varicocele impact on fertility. It was documented that varicocelectomy will improve semen analysis parameters and DNA damage in infertile patients with varicocele. We proposed to investigate the role of adding anti-oxidant to this therapy in terms of improving semen parameters and DNA damage.

Materials and Methods: A total of 100 patients enrolled in this study and were randomly divided them into two groups (50 patients in each group). In Group 1, standard inguinal varicocelectomy and in Group 2, standard inguinal varicocelectomy plus oral anti-oxidant therapy (oral L-Carnitine 250 mg three times a day) was performed for six months. For all patients, routine semen analysis plus DNA damage test of spermatozoa (by two methods of TUNEL [terminal deoxynucleotidyl transferase nick end labeling] and Protamine Damage Assay) were performed at baseline and three and six months post operatively.

Results: In both groups, the improvement in semen analysis parameters and DNA damage was observed but there was not any statistically significant difference between the two groups in these parameters, although the slope of improvement in DNA damage was slightly

better in Group 2 (that was not statistically significant).

Conclusion: We observed that adding anti-oxidant therapy to standard inguinal varicocelectomy does not add any extra benefit in terms of semen analysis parameters to DNA damage.

UP.272

Outcomes of Scrotal Pampiniform Plexus Varicocelectomy in the Treatment of Male Infertility

Saleh F, Supit W

Dept. of Surgery, Div. of Urology, Faculty of Medicine, University of Indonesia, Jakarta, Indonesia

Introduction and Objectives: Various varicocelectomy techniques have been described, each with differing results and complications. This study aims to evaluate the fertility outcomes and complications of scrotal varicocelectomy, a surgical technique that involves en bloc removal of the pampiniform plexus.

Materials and Methods: Retrospective review of 572 patients who underwent scrotal varicocelectomies, performed by the same surgeon from year 1991 to 2011, with minimum follow-up of 24 months. Among them, 73.3% had primary infertility, 7.2% had secondary infertility, 11.4% were operated for painful varicoceles, and 8.2% were operated for entrance requirement of military academy. Diagnosis was based on physical examination and ultrasonography to assess the varicocele severity. Grade III varicocele was most frequent, in 305 patients (53.0%), followed by grade II in 184 patients (32.2%). Left unilateral varicocele was found in 498 patients (87.1%) and bilateral varicoceles in 74 patients (12.9%). For statistical analysis, only 460 infertility cases were included. Semen analyses were based on the World Health Organization criteria. Fertility outcome measured changes in semen parameters and whether spontaneous pregnancy occurred. Female subfertility factors were not analysed.

Results: The mean age was 31 years (range 22 to 45 years old). Out of 460 infertility cases, 39 (8.5%) patients had undergone previous inguinal or sub-inguinal varicocelectomy. Testicular hypotrophy was found in 342 (74.3%) cases. The mean operative times were 15.2 ± 5.5 minutes for unilateral varicocele and 32.0 ± 5.8 minutes for bilateral cases. Spontaneous pregnancy occurred in 359 (78%) cases within 3 months postoperatively, thus semen analysis was not performed in these patients. Pregnancy ensued in 21 (5%) cases within 6 months, and 18 (4%) cases within 12 months postoperatively; in these patients there was significant improvement in testicular volume, sperm concentration, motility, and morphology (all $p<0.001$). Postoperative complications included 2 cases of scrotal hematoma and 42 cases of scrotal pain, all of which resolved within 3

months. Scrotal discomfort "heavy feel" was commonly reported (148 cases) until 6 months post surgery.

Conclusion: Scrotal varicocelectomy by pampiniform plexus removal is a safe procedure with minimal complications, and may significantly improve testicular volume, semen parameters, and the likelihood of a pregnancy.

UP.273

Inflammation-Based Prognostic Score Independently Predicts Intravesical Recurrence after Nephroureterectomy in Upper Urinary Tract Transitional Cell Carcinoma

Jung S¹, Chung H¹, Hwang I¹, Yu H¹, Hwang E¹, Kim S¹, Kang T¹, Kwon D¹, Park K¹, Kang S²

¹Chonnam National University Medical School, Gwangju, South Korea; ²Korea University School of Medicine, Seoul, South Korea

Introduction and Objectives: Systemic inflammatory responses defined by Glasgow Prognostic Score (GPS) have been reported to be independent predictors of unfavorable outcome in other cancers. The aim of this study was to assess the impact of GPS as a predictor of intravesical recurrence after radical nephroureterectomy (RNU) in upper urinary tract urothelial carcinoma (UUTUC).

Materials and Methods: We collected data of 147 UUTUC patients with RNU from 2004 to 2012 without a previous history of bladder cancer. Perioperative clinicopathologic variables were investigated. GPS was assigned as previously described (Crumley et al, Br J Cancer 2006). Associations between perioperative clinicopathologic variables and intravesical recurrence were analyzed using uni- and multivariate Cox regression models.

Results: Overall, 71 of 147 (48%) patients developed intravesical recurrence, including 37 (50%) with the renal pelvis and 34 (46.5%) with the ureter ($p=0.678$). Synchronous bladder tumor was found in 32 of 147 patients; 21 (30%) patients had intravesical recurrence ($p=0.027$). On univariate analysis, performance status, diabetes mellitus (DM), serum albumin, CRP, GPS and synchronous bladder tumor were associated with intravesical recurrence. On multivariate analysis, performance status (Hazard ratio [HR]: 2.33, $p=0.001$), DM (HR: 2.04, $p=0.007$), cortical thinning (HR: 2.01, $p=0.026$), and GPS (1: HR: 6.86, $p=0.001$, 2: HR: 5.96, $p=0.001$) were determined as independent predictors of intravesical recurrence.

Conclusion: Our results suggest that GPS including performance status, DM, and cortical thinning were associated with intravesical recurrence after RNU. GPS may provide a new surveillance protocol for post-operative management of UUTUC including intravesical chemotherapy instillation.

UP.274

Preoperative Positive Urine Cytology Is a Clinical Independent Risk Factor for Intravesical Recurrence after Laparoscopic Radical Nephrectomy in Patients with Upper Tract Urothelial Carcinoma

Shibuya T, Hirai K, Shin T, Mori K, Sumino Y, Sato F, Mimata H

Dept. of Urology, Faculty of Medicine, Oita University, Yufu-City, Oita, Japan

Introduction and Objectives: Approximately 15% to 50% of patients who underwent total nephroureterectomy for upper urinary tract (UUT) urothelial carcinoma (UC) developed recurrence in the bladder during the follow-up period. In this study, we investigated the independent risk factor of bladder recurrence in patients with UUT-UC after laparoscopic radical nephrectomy (LRNU).

Materials and Methods: A total of 54 patients with UUT-UC received LRNU between January 2002 and December 2012 in Oita University Hospital were enrolled in this study. Patients with concomitant bladder cancer or a history of bladder cancer were excluded from this study. Postoperative cystoscopy and urine cytology were performed every 3 months for 2 to 5 years, and postoperative intravesical recurrence was evaluated pathologically. The significance of each variable was analyzed univariately by log-rank test. Multivariate analyses by Cox proportion hazards regression model was used to estimate simultaneous effects of multiple risk factors. Statistical significance was defined as a P value of <0.05.

Results: Median follow-up after LRNU was 30.2 months (range 5-142). Of the patients, postoperative intravesical recurrences were showed in 23/54 (42%). Median time to first intravesical recurrence was 16.1 months. In univariate analysis, significant risk factors of intravesical recurrences were muscle invasive UUT-UC ($P<0.05$), lymph node metastases ($P<0.05$), postoperative adjuvant chemotherapy ($P<0.05$) and preoperative positive urine cytology indicating class IV and V ($P<0.01$). Multivariate analysis revealed that preoperative positive urine cytology indicating class IV and class V was significant risk factor for intravesical recurrence (HR: 2.68; 95% CL: 1.11-6.45 $P=0.026$).

Conclusion: Preoperative positive urine cytology was significant risk factor for intravesical recurrence. Therefore, adjuvant chemotherapy such as intravesical instillation therapy can be effective to prevent of intravesical recurrence in patients with preoperative positive urine cytology.

UP.276

Pathological Significance and Prognostic Role of TWIST Expression in Renal Cell Carcinoma: Correlation with Macrophage Recruitment

Ohba K, Miyata Y, Asai A, Mitsunari K, Matsuo T, Sakai H

Dept. of Urology and Renal Transplantation, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan

Introduction and Objectives: TWIST is a highly conserved basic helix-loop-helix transcription factor and it governs cell movement and tissue remodeling. TWIST is up-regulated by carcinogenesis and plays important roles for extra-cellular matrix degradation, angiogenesis and macrophage recruitment in several cancers. However, detailed pathological role and prognostic value of TWIST in RCC patients is not still clear. Main aim of this study is to clarify the relationship between TWIST expression and pathological features, survival, and malignant aggressiveness in RCC.

Materials and Methods: TWIST expression was examined by immunohistochemistry in 156 formalin-fixed RCC specimens. Cell proliferation, angiogenesis and apoptosis were measured as the percentage of Ki-67-positive cell (proliferation index, PI), CD34-stained vessels (microvessel density, MVD), and cleaved caspase-3-positive cell (apoptotic index, AI). In addition, semi-quantification of MMP-2 was also performed. Tumor-associated macrophage (TAM) was calculated according to the number of CD68+cells per high-power field. Survival analysis of TWIST expression was investigated by Kaplan-Meier survival analysis. Independent role of TWIST for survival and our cancer-related parameters was also evaluated by multivariate analyses.

Results: TWIST expression was positively associated with grade, pT stage, and metastasis ($P<0.001$). In special, we noticed that its expression was remarkably higher in cancer cells of sarcomatous RCC and those at invasive front. Kaplan-Meier survival curve showed that high TWIST expression was worse predictor for cause-specific survival ($P<0.001$). However, multi-variate analysis demonstrated that high grade, high pT stage and metastasis were independent predictor whereas TWIST expression was not. On the other hand, TAMs in cancer tissues with high TWIST expression (mean/SD = 46.4/13.8) were significantly higher ($P<0.001$) than those in low TWIST expression (28.4/9.1). TWIST was also positively correlated with MMP-2 ($P<0.001$), PI ($P=0.006$), MVD ($P<0.001$). Among these cancer-related parameters, only TAM ($P<0.001$) was identified as independent one by multi-variate analyses.

Conclusion: TWIST plays important roles for tumor growth, progression, and survival in RCC patients. Such pathological mechanism is

regulated by increasing of cancer cell proliferation, angiogenesis, and MMP-2 expression. In special, main role of TWIST in RCC tissues is speculated to recruit the macrophage. Our information is important to discussion on treatment and observation strategies in patients with RCC.

UP.277

AURKA Phe31Ile and Survivin rs1042489T>C Gene Polymorphisms and Upper Urinary Tract Urothelial Carcinoma Risks in Taiwan

Wu W¹, Chung S¹, Lin Y², Hour T³, Tsai Y⁴

¹*Dept. of Surgery, Div. of Urology, Far Eastern Memorial Hospital, Ban Ciao, Taipei, Taiwan;*

²*School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung City, Taiwan;*

³*Dept. of Biochemistry, Kaohsiung Medical University, Kaohsiung City, Taiwan;*

⁴*Dept. of Oncology, National Taiwan University Hospital, Taipei, Taiwan*

Introduction and Objectives: The incidence rate of upper urinary tract urothelial carcinoma (UUTUC) is relatively higher in Taiwan than in western countries. Anti-apoptosis, aneuploidy, and genomic instability are important for cancer development. The roles of genetic factors in UUTUC development are unclear. To our knowledge, this was the first hospital-based case-control study that assesses the association between UUTUC development and the polymorphisms in the Aurora kinase A (AURKA) Phe31Ile (rs2273535) and survivin rs1042489C>T genes.

Materials and Methods: Patients with UUTUC were recruited from National Taiwan University Hospital. Controls (younger than the UUTUC group) with bladder stones were recruited from Kaohsiung Medical University Hospital. Clinical records, demographic data, and possible confounding factors were collected using a standardized questionnaire. Genotyping was determined using a real-time polymerase chain reaction. Significantly more controls than patients with UUTUC drank alcohol and tea, but there were no differences in the frequencies of cigarette smokers and coffee drinkers.

Results: AURKA Phe31Ile gene polymorphisms, but not survivin rs1042489C>T gene polymorphisms, were associated with UUTUC development (X^2 test and multivariate logistic regression analysis). Stratification analysis and multivariate logistic regression analysis showed that only the association between AURKA Phe31Ile gene polymorphisms and UUTUC development were differentiated between those with and without the habits of smoking, tea drinking, or coffee drinking.

Conclusion: We hypothesized that AURKA Phe31Ile gene polymorphisms, but not survivin rs1042489C>T gene polymorphisms, increase genetic susceptibility to UUTUC. The effects

of gene-environmental interactions on UU-TUC development were found only in AURKA Phe31Ile gene polymorphisms.

UP.279

Impact of Microvascular Invasion and Tumor Necrosis on the Prognosis of Korean Patients with pT1b Renal Cell Carcinoma

Lee J¹, Song P², Ko Y², Kwon S¹, Kim B¹, Kim H¹, Kim T¹, Yoo E¹, Kwon T¹, Chung S¹, Kim B¹

¹Kyungpook National University, Daegu, South Korea; ²Yeungnam University, Daegu, South Korea

Introduction and Objectives: Health inspections and developments in radiologic imaging technologies have improved the diagnosis of stage pT1 renal cell carcinoma (RCC), which tends to be less aggressive and more responsive to curative surgery. Multiple studies have suggested a wide variety of prognostic factors for RCC, but no specific studies have been conducted on the prognostic factors of pT1b RCC. Accordingly, in the present study, the authors retrospectively evaluated prognostic factors in pT1b RCC patients.

Materials and Methods: The data of 270 patients diagnosed with pT1bN0M0 RCC at 2 institutions between January 1998 and June 2010 were retrospectively analyzed. A total of 248 patients underwent radical nephrectomy, and 22 underwent partial nephrectomy. Univariate and multivariate analyses using Cox proportional hazard models were used to identify pathologic and clinical factors that influenced prognosis. Five-year cancer-specific survival and recurrence-free survival were analyzed using the Kaplan-Meier method.

Results: The median follow-up period was 55.5 months, and the mean patient age was 55.2 years (range, 26–80). There were 12 cancer related deaths, and tumor recurrence was noted in 22 patients between 8 and 120 months after surgery. Sites of metastases included the lung in 13 patients, bone in 5 patients, and other sites in 4 patients. Five-year cancer specific survival and recurrence free survival rates were 93.5% and 91.2%, respectively. Multivariate analyses revealed that the presence of microvascular invasion and tumor necrosis independently predicted prognosis.

Conclusion: In this study, microvascular invasion and tumor necrosis were found to be prognostic factors in pT1b RCC. This result will help urologists to provide patients with more accurate prognoses, and patients with confirmed microvascular invasion and tumor necrosis will require stricter follow-up.

UP.280

Impact of Diagnostic Ureterorenoscopy on Intravesical Recurrence following Radical Nephroureterectomy for Upper Tract Urothelial Carcinoma

Shin S¹, Ryoo H¹, Sung H¹, Jeon H¹, Han D¹, Jeong B¹, Seo S¹, Lee H¹, Choi H¹, Jeon S¹, Choo S²

¹Sungkyunkwan University School of Medicine, Seoul, South Korea; ²Ajou University School of Medicine, Suwon, South Korea

Introduction and Objectives: The aim of study was to investigate whether preoperative diagnostic ureterorenoscopy (URS) affect the intravesical recurrence (IVR) after radical nephroureterectomy (RNU) in patients with upper tract urothelial carcinoma (UTUC).

Materials and Methods: We performed a retrospective analysis of 469 patients with UTUC who underwent RNU. Diagnostic URS was performed in 183 patients (39.0%). Patients were divided into two groups according to URS.

Results: Median age was 64 (IQR, 56-72) years. Median time from URS to RNU was 18 (1-42) days. Median follow-up duration was 39.9 (22.4-68.3) months. The IVR developed in 220 patients (44.8%) at a median of 8.7 (5.6-17.0) months. Prior or concurrent bladder tumor was found in 82 patients (17.5%). Excluding prior history of bladder tumor, the five-year IVR-free survival rate was 61.0±7.4% and 38.8±9.0% in patients with and without preoperative URS, respectively ($P < .001$).

Multivariate analysis showed that previous history of bladder tumor, extravesical excision of distal ureter, and multifocal tumor, and preoperative URS were independent predictors for IVR. Diagnostic URS was not associated with disease progression in univariate or multivariate analysis. The incidence of IVR in the group of delayed RNU did not differ from that of concurrent RNU group ($P = .499$). There was no difference between the concurrent (13.2 ± 12.6 months) and delayed RNU group (14.2 ± 14.7 months, $P = .775$) regarding time to bladder recurrence.

Conclusion: Diagnostic URS for UTUC was associated with increased IVR following RNU, but not with disease progression. Delayed RNU caused by preoperative URS did not affect the incidence of IVR.

UP.281

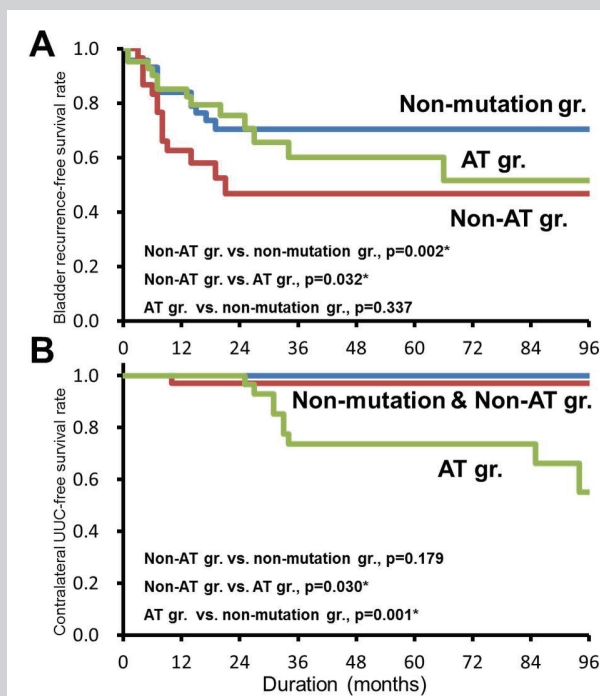
Tumor TP53 Mutation Patterns Determine the Outcomes of the Upper Tract Urothelial Carcinoma Patients

Chen C¹, Huang C¹, Dickman K², Grollman A², Pu Y¹

¹National Taiwan University Hospital, Taipei, Taiwan; ²Dept. of Pharmacological Sciences and Medicine, Stony Brook University, Stony Brook, USA

Introduction and Objectives: The mutation patterns of tumor genes are associated with different carcinogens and tumor behavior. In this study, we investigated the association between the clinical outcomes and the mutation patterns

UP.281, Figure 1.



of *TP53* in UUC patients.

Materials and Methods: A total of 165 patients with UUC were enrolled from 1999 to 2011 in this study. *TP53* gene of UUCs was sequenced by Roche AmpliChip p53. Contralateral UUC recurrences, bladder tumor recurrences and progression were determined by the scheduled surveillance after nephroureterectomies. Other clinico-pathological characters were obtained from the medical records.

Results: In this cohort, 55 (33.3%) and 42 (25.5%) patients had *TP53* mutations with A-to-T transversion (AT group) and without A-to-T transversion (non-AT group), respectively. *TP53* mutations were not identified in the rest 68 (41.2%) patients (non-mutation group). AT group had a higher proportion of female gender (64%, 52%, 29%, $p=0.001$), end-stage renal disease (24%, 14%, 10%, $p=0.124$), aristolactam-DNA adducts (89%, 54%, 51%, $p<0.001$), and high-grade tumors (82%, 74%, 62%, $p=0.046$) than non-AT and non-mutation groups. However, non-mutation group had more histories of smoking (28%, 11%, 26%, $p=0.055$) and diabetes (33%, 20%, 15%, $p=0.07$) than AT and non-AT groups. The multivariate analyses revealed non-AT group (HR: 2.56, $p=0.024$, reference: non-mutation group), but not AT group (HR: 1.21, $p=0.66$, reference: non-mutation group), independently predicted bladder recurrence in UUC patients receiving nephroureterectomies. AT group was associated with more events of contralateral UUC occurrence than non-AT and non-mutation groups (25%, 7%, 2%, $p<0.001$) during a median follow-up duration of 3 years.

Conclusion: Different patterns of *TP53* mutations in UUC tumors owned dramatically different outcomes. A-to-T transversions were associated with contralateral UUC occurrence, but mutations other than A-to-T transversions in *TP53* were linked to bladder recurrences. The mutation pattern of *TP53* gene was a useful biomarker predicting the clinical outcomes of UUC patients.

UP.283

Systemic Inflammatory Response in Upper Urinary Tract Urothelial Carcinoma

Jeon C, Kim K, Kim M, Choi W, Jeong C, Kwak C, Kim H, Ku J
Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objectives: The aim of this study was to determine the utility of systemic inflammatory response and develop a clinical score based on inflammatory indices to aid prognostication in patients with upper urinary tract urothelial carcinoma (UTUC).

Materials and Methods: The study population comprised 281 patients with non-metastatic UTUC who underwent nephroureterectomy between 1999 and 2010. Multivariate survival

analysis was performed using Cox's proportional hazards model and a new scoring model was developed to predict disease-specific outcomes in UTUC using the regression coefficients of the final multivariate model. The coefficient for each factor was divided by the highest coefficient, multiplied by 4, and rounded to the nearest integer.

Results: The final model consisted of pathologic T stage, lymphovascular invasion (LVI), and derived neutrophil/lymphocyte ratio (NLR). These prognostic factors were scored as follows: $pT2 = 3$ or $pT3 = 4$; $LVI = 2$; and derived $NLR \geq 2:1 = 2$. The concordance index of the model was 0.764 and integrated area under the curve value for time to disease-specific mortality for patients was 0.764. Model discriminated well and log-rank test were all highly significant ($p < 0.001$); the 5-year disease-specific survivals in the low-, intermediate-, and high-risk group were 91.5%, 72.5%, and 50.3%, respectively. In our cohort, the predictions resulted in good net benefit across the range of risk thresholds.

Conclusion: Derived NLR may be used in combination with conventional staging techniques and LVI to improve the prediction of survival in patients with UTUC.

UP.284

Pre-Nephroureterectomy Diagnosis and Staging for Upper Tract Transitional Cell Carcinoma: What Is the Value of Ureteroscopy and Biopsy?

Aldiwani M, Alcorn J, Browning A, Biyani C
Pinderfields General Hospital, Wakefield, UK

Introduction and Objectives: There is considerable variation in the investigation and diagnosis of Upper Tract Transitional Cell Carcinoma (UTTC) involving the use of imaging, urine cytology and Ureteroscopy (URS) plus biopsy. The role of pre-operative histological diagnosis is unclear with varied accuracy rates reported. We review the preoperative pathway for patients who underwent Nephroureterectomy (NU) for UTTC in our institution.

Materials and Methods: We retrospectively reviewed patients who underwent NU for suspected UTTC between January 2006 and December 2013 from our local theatre database. Pre-operative investigations were reviewed and compared to final histology data. Follow-up data was analysed for frequency of intravesical recurrence comparing URS vs. no URS.

Results: Sixty seven patients underwent NU for suspected UTTC. Sixty two (92.5%) patients had a final TCC diagnosis. Sixty five patients had CT Urogram, 1 had MR Urogram, 1 had Intravenous Urogram only. Twenty seven patients (40%) underwent URS pre operatively. Twenty Ureteroscopic biopsies were taken in 18 patients. Of these biopsies, 5 (25%) were inadequate samples, 3 (15%) were false negative, 7 (35%) under-staged the cancer and only

5 (25%) accurately staged the cancer. Three patients had CIS in the final histology; none of which was diagnosed in the biopsy sample. Two patients had benign disease at final histology, both of which had inadequate biopsies. Six out of 17 patients who had cytology tested had malignant or atypical cells. Forty patients underwent NU based on confident imaging diagnosis. All final histology was malignant with 37 cases of confirmed UTTC and 3 cases of Renal Cell Carcinoma. Thirteen out of 21 of patients with UTTC in this group had malignant or atypical urine cytology where tested. Intravesical recurrence was higher in patients who underwent URS (37% vs. 20%, $p=0.154$, average follow-up 26 months (1-72)). No significant difference in tumour or patient characteristics between the two groups explained this.

Conclusion: Ureteroscopic biopsy for the assessment of UTTC is unreliable and frequently under-stages the disease offering limited reliable additional information. Histological diagnosis should only be attempted after MDT discussion where doubt remains. Our results suggest an increased incidence of intravesical TCC recurrence following URS. More research is needed.

UP.285

Small Renal Masses Do Not Impair Kidney Function

Stakhovskiy O, Voilenko O, Pikul M, Vitruk I, Stakhovskiy E
National Cancer Institute, Kiev, Ukraine

Introduction and Objectives: Active surveillance is advocated and used for a selected group of patients with localized RCC. Majority of such tumors are small renal masses (SRM) that are less than 4cm in diameter. The impact of SRM on kidney function is not well studied. Our objective was to evaluate baseline kidney function in patients with SRM that were treated in our department.

Materials and Methods: We retrospectively analyzed patients' records from 2008 to 2012. We identified 220 patients with T1a tumors that underwent treatment in our department. Out of those we identified 143 patients with renal scintigraphy (RS) at baseline. We excluded patients with bilateral lesions and patients with uni/bilateral hydronephrosis and remaining 128 patients were used for definitive analysis. We collected all the clinical data: age, sex, tumor size, type of growth, GFR that was obtained from RS (overall kidney function and split kidney function). We were able to compare the function of kidneys effected and not-effected by the lesion. GFR of kidneys with totally endophytic tumors were compared with the rest of the group.

Results: Mean age of the patients was 54.7 ± 8.5 years. Male/female ratio was 76/52. Mean

tumor size of the group was 30.2 ± 7.6 mm and the overall mean kidney function was 90.25 ± 19.9 ml/min, there were no significant difference when compared function split function of left and right kidneys: 45.49 ± 11.2 ml/min and 44.99 ± 10.8 ml/min. Function analysis of kidneys with tumors versus function in unaffected kidney revealed no significant difference: 44.2 ± 10.4 ml/min vs. 46.28 ± 11.5 ml/min ($p=0.13$). When we compared the GFR of kidneys with totally endophytic lesions ($n=20$) there was no difference seen with contralateral kidney function of those patients: 47.31 ± 8.9 ml/min and 48.42 ± 7.4 ml/min ($p=0.68$). All the patients underwent surgical treatment and there were 126 (96%) partial resections performed and 5 (4%) radical nephrectomies.

Conclusions: Kidney tumors below 4cm in size does not seem to impact kidney function taking into account GFR findings from RS preoperatively. Totally endophytic SRM do not deteriorate kidney GRF comparing with function of contralateral kidneys. Further studies needed to confirm our findings.

UP286

Tumor Size Influence on Kidney Function

Stakhovskiy O, Vitruk I, Voilenko O, Vukalovich P, Stakhovskiy E

National Cancer Institute, Kiev, Ukraine

Introduction and Objectives: Kidney tumor growth is often substituting or pushing on parenchyma, decreasing its function. Renal function is usually evaluated on the basis of creatinine levels in patients with RCC preoperatively. Renal radioscintigraphy is not commonly used, but it may show the decrease in kidney function on the side of the tumor, giving surgeon additional information to pursue nephron-sparing surgery approach. Our objective was to evaluate the effect of tumor size on kidney function preoperatively.

Materials and Methods: Retrospective analysis of patients with RCC treated from 2009-2012, that had renal radioscintigraphy preoperatively. A total of 334 patients with mean age of 54.7 ± 10.4 were analyzed. Four groups for comparison were formed on the basis of tumor size: <4 cm; 4-7cm; 7-10cm; ≥ 10 cm. Analysis was done for total and split kidney function. The difference between kidney function on the side of a tumor and contralateral kidney was evaluated.

Results: Mean size of the tumor was 61.1 ± 31.9 mm, mean total GFR was 85.8 ± 19.8 ml/min and mean kidney function on tumor side was 40.7 ± 12.8 ml/min. Comparison groups were statistically significant by age, male/female ratio. Mean total GFR for all the groups were 89.3 ± 19.4 ml/min; 86.7 ± 19.8 ml/min; 82.7 ± 20.4 ml/min and 77.7 ± 18.32 ml/min respectively. Mean GFR values of kidney with tumor into four groups were: 44.1 ± 10.3

ml/min; 42.3 ± 11.9 ml/min; 36.9 ± 14.2 ml/min $\pm 31.5 \pm 15$ ml/min. Paired analyses showed higher statistical difference between groups, but significant difference were seen only between 2nd and 3rd group ($p=0.007$). Statistical significance ($p<0.001$) in function was found when comparing T1 lesions with tumors > 7 cm in diameter (mean GRF 43.11 ± 11.22 ml/min vs. 34.76 ± 14.7 ml/min). Paired analysis of kidney with tumor and contralateral kidney showed decreased function on tumor side, but statistical significance was reached only when tumors reached the size of 7cm ($p=0.0004$).

Conclusion: Correlation between tumor size and kidney function was shown in our analysis. Statistically significant difference was seen between function in kidneys with a tumor below and over 7cm. No difference in total GFR between the groups gives us more information and understanding of hidden mechanisms kidney function deterioration.

UP287

Is Blood Group a Risk Factor in Renal Cancer?

Martha O, Brad A, Hodade Porav D, Chibelea C, Maier A, Vida O, Todea C,

Vartolomei M

University of Medicine and Pharmacy, Targu Mures, Romania

Introduction and Objectives: Renal tumor shows an alarming increasing incidence. There are several well known risk factors which play an important role in this pathology. This retrospective study analyses the blood group as a possible risk factor in renal cancer.

Materials and Methods: A retrospective analysis of the risk factors (sex, age, blood group, dislipidaemia, hypertension, diabetes) of 126 patients diagnosed with renal cancer in a period of 4 years, (2008-2012), at the Clinic of Urology of Targu Mures.

Results: The distribution by gender into account, the majority of patients were male 126 (100%) patients 74 (59%), greater percentage of patients were between 51-60 years 47 patients (37%). The average age was 59 years. In 126 patients (100%) 44 (35%) were between 61 and 70 years. Regarding bladder group our findings were the following; group 0; (Rh+) 44 patients (35%), A; (Rh+) 57 patients (45%), gr B; (Rh+): 9 cases (7%), AB; (Rh+) 8 (6%), 0; (Rh-) 2 ((2%), A; (Rh-) 4 patients (3%) and AB (Rh-) 2 patients (2%). From the point of view of dislipidaemia, only 24% of the patients had reported dislipidaemia, mainly hypercholesterolaemia. Distribution of hypertension: 64 (51%) out of 126 Grawitz tumor diagnosed patients were reported with hypertension and 34 (27%) with diabetes mellitus. Ischaemic cardiomyopathy was reported in 25 patients (64%).

Conclusions: Much of the same as the results reported in the literature. The exception is the

distribution of blood group because of the available data which are limited. Hypertensive blood group A patients, and enhanced filtration control is indicated ($p=0.000532$). It is important to note that the risk factors cannot be interpreted individually.

UP288

Benefit of Three-Dimensional Printing in Robotic Laparoscopic Renal Surgery: Tangible Surgical Navigation Using a Patient-Based Three-Dimensional Printed Kidney

Shiga Y¹, Sugimoto M², Iwabuchi T¹, Kawano Y¹, Yokoyama H¹, Ooiwa Y¹, Shimbori M¹, Hariu K¹, Yamamoto R¹

¹Tokyo Nephro Urology Center Yamato Hospital, Tokyo, Japan; ²Kobe University, Kobe, Japan

Introduction and Objectives: Robotic-assisted partial nephrectomy aims to ensure the recognition of cancer and achievement of a precise excision line according to the shape of the tumor despite the lack of tactile sensation. Therefore, understanding tumor shape and renal vasculature characteristics enables a safer and more reliable surgery. Tangible surgical navigation using a patient-based three-dimensional (3D) printed kidney is an interactive approach. We currently use a 3D printer to fabricate replicas of patients' organs in preparation for surgery. This study shows that our tangible surgical navigation system using a patient-based 3D printed kidney is useful for robotic-assisted partial nephrectomy.

Materials and Methods: After processing data obtained from multidetector computed tomography, we reconstructed an anatomically correct virtual surgical area using the DICOM viewer OsiriX, open-source software. Volume-rendering 3D reconstructions were incorporated on the TilePro multi-input display of the da Vinci S Surgical System to provide anatomical navigation assistance during robotic surgery. Additionally, the 3D printed organ model is composed of a transparent resin that enables visualization of the blood vessels from the outside. These replicated organs are printed using two materials on an Objet Connex 3D printer. Using a replicated kidney model composed of a soft material that can be resected using the robot scissors, it was possible to simulate a real surgery.

Results: In our experience with ten consecutive cases of navigation surgery, the surgical margin and renal function were successfully secured. The median operative time was 145 min, and the mean clamping time was 12 min. The serum creatinine level was within normal limits after the surgery. The use of our navigation system was helpful for gaining a 3D anatomical understanding of the surgical target, since it enabled the surgeon to reduce the ischemic area by performing segmental artery clamping. The shortest ischemic time was 8 min.

Conclusion: This patient-based 3D-printed organ model provides tangible surgical navigation. Replicas of patients' organs provide important orientation for robotic-assisted partial nephrectomy and enable precise clamping of the segmented arteries. The combined use of our interactive navigation system and these replicated organs leads to satisfactory surgical outcomes.

UP.289

Nephro-Sparing Surgery of Urothelial Cancer of the Upper Urinary Tract in Solitary Functioning Kidney (Case)

Roshchin D, Perepechin D, Kachmazov A, Koriakin A

Research Institute of Urology, Moscow, Russia

Introduction and Objectives: Duplicated kidney is presented by two organs separated in the anatomical and physiological terms. Anatomical separation of the urinary tract can give a chance to the fact that the urothelium of the pyelocaliceal system of the second half of kidney may not be subjected to those genetic errors and differentiation failures as in the first.

Materials and Methods: Patient M., 72 years old. Urinary markers: BTA positive; cytology, NMP22 and UBC negative. Ultrasound examination was uninformative. MRI: complete doubling of the right kidney; a lesion of irregular shape (size: 2.2x1.1x2.5cm) in the upper third of the right ureter. CT: there was not a clear conclusion on the presence of a tumor. Function of the contralateral pelvic-dystopic kidney was significantly reduced. Ureteroscopy: narrow intramural part of the right ureter (<8Ch) made the procedure uninformative. Diagnostic percutaneous nephroscopy: tumor in the upper ureter completely occluded drainage of pyelocaliceal system. During the open operation a dense formation of about 4 cm length was identified in the ureter of the upper half of the doubled kidney, visually limited by walls of the ureter. The lower ureter was cut off en bloc with a fragment of the bladder wall. Right nephrectomy was performed within the healthy parenchyma. Pyelocaliceal system elements of both kidneys were observed. Histopathological examination: moderately differentiated papillary urothelial carcinoma; no lymph-node metastases were detected.

Results: The final diagnosis: Urothelial cancer of the upper third of the left ureter and lower half of the duplicated right kidney pT1N0M0G2. Status post heminephroureterectomy on the right, retroperitoneal lymphadenectomy. Complete duplication of the right kidney. Pelvic renal ectopia.

Conclusion: Every patient requires a special approach to the staging and treatment selection. In this particular case, the presence of congenital anomalies of the kidney and urinary tract, not only significantly complicated the situation, but also, paradoxically, allowed to perform an

unclassified radical surgery, fully preserving the excretory function without sacrificing the radical treatment.

UP.290

Can Preoperative Ureteral Procedure, Cytology and Diabetes Mellitus Predict Bladder Recurrence in Upper Urinary Tract Urothelial Carcinoma?

Jung S, Chung H, Hwang I, Yu H, Hwang E, Kim S, Kang T, Kwon D, Park K
Chonnam National University Medical School, Gwangju, South Korea

Introduction and Objectives: Although several studies have addressed some risk factors for the subsequent development of bladder cancer after primary upper urinary tract urothelial carcinoma (UUT-UC), risk factors for bladder recurrence are still a matter of debate. We assessed the impact of the preoperative ureteral procedure and preoperative urine cytology on bladder recurrence after primary UUT-UC. We determine the risk factors of bladder recurrence in patients with diabetes mellitus (DM) who were treated for UUT-UC.

Materials and Methods: From January 2004 to December 2012, we analyzed data from 172 patients with UUT-UC who underwent nephroureterectomy with bladder cuff excision. Patients with concomitant bladder cancer, local recurrence and metastases were excluded from the analysis. Clinicopathologic data for the remaining 115 patients with UUT-UC were retrospectively reviewed. Preoperative urine cytology was examined using washing urine. We assessed the association of Preoperative cytology (positive, negative and atypical) with DM and bladder recurrence. The influence of other traditional prognostic factors, including tumor stage, grade, location, degree of hydronephrosis and ureteral procedure (ureteroscopy, retrograde ureteropyelography) on bladder recurrence-free survival (RFS) rates were analyzed using Kaplan-Meier analysis and Cox proportional hazards regression analysis.

Results: Among 63 renal pelvis and 52 ureteral tumor cases, bladder recurrence was identified in 50 cases (43.5%). The median follow-up after NUX was 31.5 months. The median time to first bladder recurrence was 25 months. Significant risk factors for bladder recurrences on univariate analysis were diabetes mellitus ($P=0.001$), Operation method ($P=0.047$) and T stage ($P=0.027$), but preoperative positive urine cytology, RGP, and ureteroscopy were not risk factors for bladder recurrences. Multivariate analysis revealed that only diabetes mellitus was significant for bladder recurrence.

Conclusion: Risk factors for the subsequent development of bladder cancer after NUX were diabetes mellitus. Preoperative ureteral procedure and preoperative urine cytology were not determined as risk factors for subsequent bladder recurrence.

UP.291

The Surgical Wait Time Affects Oncologic Outcomes in Upper Urinary Tract Urothelial Carcinoma Located in Ureter

Lee J, Kwon S, Kim B, Kim H, Kim T, Yoo E, Kwon T, Chung S, Kim B

Kyungpook National University, Daegu, South Korea

Introduction and Objectives: The surgical wait time between diagnosis and nephroureterectomy might affect oncologic outcomes in upper urinary tract urothelial carcinoma (UTUC). The aim of the current study was to assess the effect of surgical wait time on the oncologic outcomes of patients with UTUC, particularly when located in the ureter.

Materials and Methods: A total of 138 patients diagnosed with UTUC after nephroureterectomy conducted between January 2001 and December 2010 were enrolled in this retrospective study. Using an optimal surgical wait time cutoff value (30.5 days), we allocated patients to an early group (<1 month) or a late group (>1 month). Cancer specific survival and local/distant recurrence free survival rates were estimated using the Kaplan-Meier method. Factors influencing cancer specific survival (CSS) and local/distant recurrence free survival (RFS) after radical surgery were identified using Cox proportional hazards regression models. Subgroup analysis was performed on ureteral urothelial carcinoma using the same methods.

Results: Of the 138 UTUC patients, 75 underwent nephroureterectomy early (<1 month) and 63 patients underwent nephroureterectomy late (>1 month). After a mean follow-up of 44 months, CSS and RFS were non-significantly different in the two groups. However, subgroup analysis of the 80 patients with ureteral urothelial carcinoma showed that CSS and RFS were significantly greater in the early subgroup, and multivariate analysis showed that a surgical wait time of >1 month was an independent prognostic factor of CSS and RFS in ureteral urothelial carcinoma ($P = 0.04$ and $P < 0.001$).

Conclusion: A surgical wait time of >1 month in ureteral urothelial carcinoma was found to be an independent prognostic factor of disease recurrence and cancer-specific mortality. Appropriate surgical wait time should be considered in treatment for patient with ureteral urothelial carcinoma.

UP.292

Incidence and Outcome of Interstitial Lung Disease (ILD) with Everolimus Treatment for Metastatic Renal Cell Carcinoma

Takeda H, Nakano Y, Narita H

Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: Interstitial lung disease (ILD) is known as one of the adverse events during treatment with everolimus for

metastatic renal cell carcinoma (mRCC). To elucidate the patterns of interstitial lung disease during everolimus treatment in patients with metastatic renal cell carcinoma, we reviewed eight cases of everolimus-induced interstitial lung disease.

Materials and Methods: We retrospectively assessed the incidence and outcome of ILD in mRCC patients treated with everolimus. From 2010 to 2014, 27 cases were treated with everolimus after failure of one or two TKIs in our institute. All adverse events were graded in accordance with NCI CTCAE, version 3.0.

Results: A total of 27 patients received treatment with everolimus. They included 19 male and 8 female patients ranging in age from 54 to 86 years (median 66.4). According to MSKCC risk criteria, 8 cases were at favorable risk, 15 cases were at intermediate risk, and 4 cases were at poor risk. Median treatment term was 4.5 months (range 2-22 months). SD was in 19 cases and PD was in 8 cases. Progression free survival was 3.46 months and overall survival was 11.8 months. ILD cases (average age 71.4) included 5 male and 3 female. Median treatment term was ranging in 2 weeks-20 weeks, median 6.62 weeks. ILD was found in 8 cases (29.6%). Five (62.5%) cases were G1, 3 (31.5%) were G2. Average dose were 9.16mg. Chest X-ray demonstrated diffuse infiltrates in lung fields, and chest computed tomography showed bilateral reticular and ground-glass opacities. Serum levels of lactate dehydrogenase (5cases/7), CRP: median 3.51 (5/8), SPD: median 89.47 (6/8) and KL 6: median 692.2 (5/8) were elevated. In two cases with mild interstitial lung disease, the everolimus therapy was successfully continued. In four cases with Grade 3 interstitial lung disease, the drug was discontinued and steroid therapy was initiated. Pulmonary symptoms and radiological abnormalities resolved within 2 months. Corticosteroid therapy was initiated in 2 cases. In 4 of 8 ILD cases, everolimus was re-challenged. In our series, patients with ILD showed significantly better progression free survival than those without ILD (PFS was 8 months vs. 3 months ($p < 0.001$)). There were no significant different between the 2 groups in overall survival (12 months in patients with ILD vs. 10 months in patients without ILD. Log-rank, NS).

Conclusions: Everolimus appears to be effective and well-tolerated in our institute. Re-challenge of everolimus was feasible after improving of everolimus-induced ILD in cases of grade 1-2.

UP.293

Preoperatively Predicting Patients Who Are "Unfit" for Cisplatin-Based Chemotherapy in Upper Tract Urothelial Carcinoma

Junichiro I, Minato Y, Manabu T, Soichiro Y, Yoh M, Noboru N, Kazutaka S, Yasuhisa F, Kazunori K

Tokyo Medical and Dental University Graduate School, Tokyo, Japan

Introduction and Objectives: Many patients with upper tract urothelial carcinoma (UTUC) become "unfit" for cisplatin-based chemotherapy (UCC) with an estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73 m² after radical nephro-ureterectomy (RNU). To identify patients who are "unfit" for cisplatin-based adjuvant chemotherapy and "fit" for neoadjuvant chemotherapy, a preoperative UCC risk prediction tool for patients undergoing RNU is needed. We investigated the predictors of post-RNU renal function in a Japanese patient cohort and developed a formula to predict postoperative eGFR and a predictive model for the risk of UCC after RNU.

Materials and Methods: Between 1994 and 2013, 192 patients with UTUC underwent RNU. Of these patients, 49 (26%) preoperative UCC patients were excluded. Laterality, age, gender, degree of hydronephrosis, body mass index (BMI), performance status, history of bladder cancer, concomitant bladder cancer, symptom at diagnosis, serum level of C-reactive protein (CRP), and hemoglobin were evaluated. A linear regression-based formula to predict eGFR and a logistic regression-based model to predict UCC patients were developed.

Results: Median postoperative eGFR was 62 ml/min/1.73m² (Interquartile range 54-72) and 62 (43%) patients became UCC at 1 month after RNU. Preoperative eGFR, age, degree of hydronephrosis, BMI, and C-reactive protein were independent predictors of postoperative eGFR less than 60 ml/min/1.73 m². In the logistic regression-based model (Figure 1), the probability of becoming UCC was given by the following formula with an area under the receiver operating characteristic curve of 0.77: $P = 1 / (1 + \exp(Y))$, where $Y = -0.04 \times \text{preoperative eGFR (ml/min/1.73m}^2) + 0.04 \times \text{age (years)} - 0.54$ (if hydronephrosis grade 2 or

3) $- 2.48$ (if hydronephrosis grade 4) $+ 0.11 \times \text{BMI} - 0.92 \times \log(\text{CRP})$.

Conclusion: We developed a predictive model to identify UTUC patients who are postoperatively "unfit" for cisplatin-based adjuvant chemotherapy.

UP.294

Prognosis of Patients Undergoing Radical Nephroureterectomy for Upper Urinary Tract Urothelial Carcinoma: Use of the Neutrophil-Lymphocyte Ratio and Erythrocyte Sedimentation Rate

Shin S, Ryoo H, Sung H, Jeon H, Jeong B, Seo S, Jeon S, Choi H, Lee H

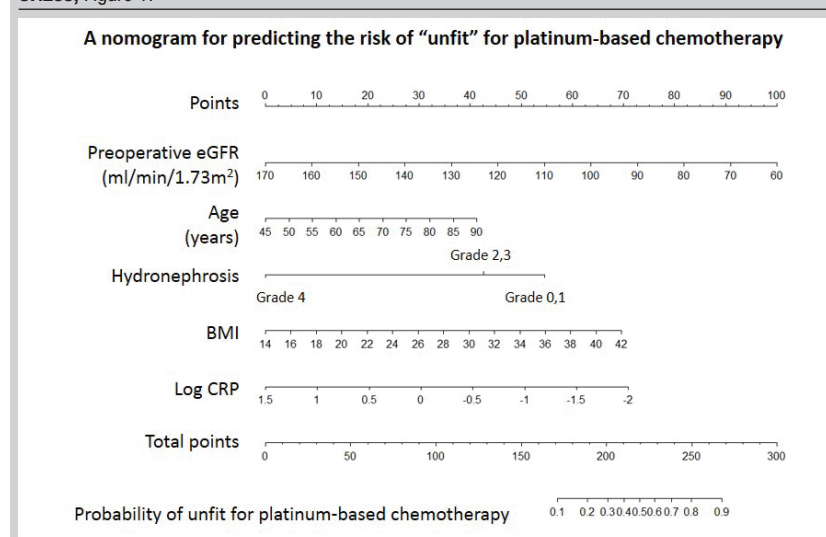
Sungkyunkwan University School of Medicine, Seoul, South Korea

Introduction and Objectives: To evaluate pre-operative erythrocyte sedimentation rate (ESR) and neutrophil-lymphocyte ratio (NLR) as prognostic factors in patients underwent radical nephroureterectomy for upper tract urothelial cancer (UTUC).

Materials and Methods: A total of 410 patients were retrospectively reviewed. Elevated NLR was defined as ≥ 2.5 . Normal ESR was ranged as 0-22 and 0-27 in men and women, respectively. Patients were divided into 3 groups: those with ESR and NLR in normal range (Group 0, n=168), elevations in either ESR or NLR (Group I, n=169), and elevations in both ESR and NLR (Group II, n=73).

Results: Median age was 64 years with follow-up duration of 40.2 months. The 35.6% and 41.2% of patients had elevated NLR and ESR, respectively. Group II was associated with advanced tumor status including size, grade, stage, lymph node, and margin ($p < 0.05$). Preoperative ESR (HR=1.784, 95% CI=1.173-2.712), NLR (HR=1.704, 1.136-2.556), and prognostic grouping (HR=2.285, 1.397-3.737

UP.293, Figure 1.



for Group I; HR=2.962, 1.719-5.102 for Group II) were independent predictors for progression-free survival (PFS) in the multivariate model ($p<0.05$). Prognostic grouping was also an independent prognostic factor for cancer-specific survival (CSS) and overall survival (OS). Time-dependent area under the receiver-operating-characteristic curves of NLR plus ESR was greater than that of NLR alone regarding oncologic outcomes ($p<0.05$).

Conclusions: Prognostic grouping using ESR and NLR was identified as an independent prognostic marker in patients with UTUC. The addition of ESR improved prognostic value of NLR alone to predict PFS and OS. We suggest a new prediction model using common tests in clinical practice.

UP295

Preoperative Hydronephrosis Predict the High Frequency of Intravesical Recurrence after Nephroureterectomy for Upper Urinary Tract Urothelial Carcinoma

Inokuchi J¹, Kuroiwa K², Kiyoshima K¹, Tatsugami K¹, Yokomizo A¹, Naito S¹

¹Kyushu University Hospital, Fukuoka, Japan;

²Miyazaki Prefectural Miyazaki Hospital, Miyazaki, Japan

Introduction and Objectives: Bladder tumors have been reported to be found frequently after nephroureterectomy (NU) for patients with upper urinary tract urothelial carcinoma (UUT-UC). Although many studies have reported clinicopathological features of UUT-UC which affect bladder tumor development, these predictive factors are still controversial. Furthermore, the prognostic impact of intravesical recurrence is not clear. The aim of this study was to identify predictive factors of intravesical recurrence after NU for UUT-UC and verify prognosis of these patients.

Materials and Methods: Clinicopathological data were retrospectively collected from patients who underwent NU for UUT-UC without distant metastasis between March 1993 and June 2013 at Kyushu University Hospital. We excluded patients who received cystectomy previously or concurrently, and patients with short follow-up period within 3 month. With such criteria, data from 161 patients were available for evaluation. Kaplan-Meier method with a log-rank test was used for survival analysis. A Cox proportional hazard model was used for multivariate analysis.

Results: The median age and follow-up period after surgery were 71 years (range 32-88) and 44.6 months. For pathological stage, 92 (57.1%) and 65 (40.4%) had non-muscle invasive and muscle invasive diseases, respectively. Of the 161 patients, 79 patients developed intravesical recurrence at a median interval of 8.4 months after surgery, and 71 (89.9%) patients had intravesical recurrence within 2 years after surgery.

Multivariate analysis revealed that previous or synchronous bladder tumor and preoperative hydronephrosis were associated with high frequency of intravesical recurrence. Furthermore, there were no significant differences in intravesical recurrence-free survival or disease-specific survival between patients with intravesical recurrence and those without recurrence.

Conclusion: Although this study is limited by its retrospective nature and its small sample size, this study suggests that preoperative hydronephrosis and previous or synchronous bladder tumor might be risk factors for intravesical recurrence after NU for UUT-UC. Furthermore no correlation was detected between intravesical recurrence and overall survival. Even though the cystoscopy should be observed in all cases because of high intravesical recurrence rate, intravesical recurrence might not have impact on prognosis.

UP296

Renal Tumor Size Is an Independent Prognostic Factor for Overall Survival in von Hippel-Lindau Disease

Song S, Jeong I, Kwon T, Hong B, Park H, Kim C

University of Ulsan College of Medicine, Asan Medical Center, Seoul, South Korea

Introduction and Objectives: Although the impact of renal tumor size on the progression of VHL disease has been explored, it remains unclear whether renal tumor size affects survival. Therefore, the present retrospective cohort study was performed to evaluate the impact of RCC on survival in VHL disease and the relationship between tumor size and survival.

Materials and Methods: In this retrospective cohort study, the medical records of 72 patients who presented with VHL disease between 1994 and 2012 were reviewed. Clinical VHL related characteristics were analyzed and the prognostic value of renal tumor size for overall survival was assessed by using Cox regression models.

Results: Of the 72 VHL patients, 42 (58.3%) and 30 (41.7%) were male and female, respectively. The mean age was 37.9 years, and the median follow-up period was 61.5 months. In terms of VHL related manifestations, 40 (55.6%) had RCC, 46 (63.8%) had hemangioblastoma in the cerebellum, 10 (13.9%) had hemangioblastoma in the spinal cord, 34 (47.2%) had a pancreatic mass, 18 (25.0%) had pheochromocytoma, and 14 (19.4%) had retinal capillary hemangioma. RCC was a major cause of mortality: of the 11 patients who died, nine (12.5%) died due to RCC progression. The 5-year overall survival rate was 85.6% for all patients, 96.9% for patients without RCC, 83.6% for patients with RCC <3cm, and 75.8% for patients with RCC ≥3cm. Multivariable analysis showed that RCC ≥3cm was an independent predictor of overall survival (Hazard

ratio [HR] 9.87, 95% confidence intervals [CI] 1.17–83.00, $p=0.035$) along with age (HR 1.05, 95% CI 1.01–1.10, $p=0.027$).

Conclusions: Renal tumor size was an independent prognostic factor for overall survival in VHL disease. This observation will be helpful for planning RCC treatment in VHL disease. However, because the study cohort was relatively small, further studies are needed to determine the clinical validity of this treatment strategy.

UP297

Favorable Renal Function after Distal Ureterectomy for Lower Ureteral Cancer: One-Year Postoperative Renal Functional Result

Moriyama S^{1,2}, Takeshita H², Kagawa M¹, Chiba K¹, Yokoyama M², Ishioka J², Numao N², Saito K², Fujii Y², Kihara K², Owada F¹, Noro A¹

¹Saitama Red Cross Hospital, Saitama, Japan;

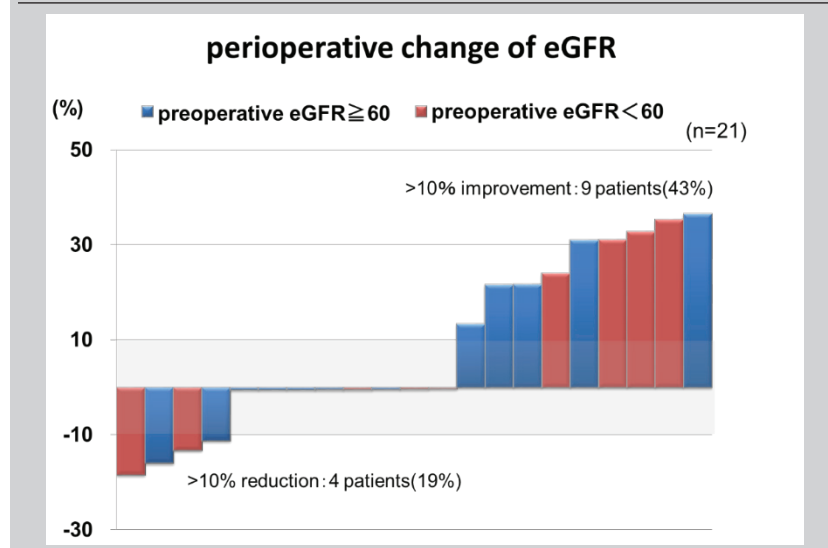
²Tokyo Medical and Dental University Graduate School, Tokyo, Japan

Introduction and Objectives: Distal ureterectomy (DU) for the ureteral cancer (UC) could be an optional therapy for lower UC as kidney-sparing surgery. There have been few reports whether preserved kidney with DU can maintain renal function postoperatively. Therefore, we retrospectively reviewed renal function after DU for lower UC.

Materials and Methods: Between 1973 and 2013, a total of 32 patients underwent DU due to low renal function, advanced age, impaired performance status and strong patients' desire. Twenty-four patients with detailed clinical information were enrolled in this study. Primary endpoint was one-year postoperative renal function and secondary endpoint was oncological outcome. To evaluate renal function, we used the Japanese equation (estimated glomerular filtration rate [eGFR] [ml/min/1.73m²] = $194 \times \text{Cr}^{-1.094} \times \text{Age}^{-0.287} \times 0.739$ [if female]).

Results: Median age at DU was 71 (range, 55–88) and preoperative median eGFR was 61.0 ml/min/1.73m² (21.0–126.1). Nineteen patients (79%) were pathological T1 (pT1) or less and five (21%) were pT2 or more. The median length of follow-up was 70.8 months. The cancer-specific survival rate and metastatic-free survival rate at 5 years were 94.7 and 87.5%, respectively. The recurrence-free survival rates at 3 years in the upper urinary tract and in the bladder were 86.5 and 44.4%, respectively. Three patients underwent unilateral nephroureterectomy due to two upper urinary tract recurrences and one uncontrolled infection in one year after surgery. Eventually, 21 patients (87.5%) with bilateral kidneys were evaluated in the renal functional study. Postoperative median eGFR was 61.3 ml/min/1.73m² (25.7–125.5). Reduction of >10% in eGFR after DU was seen in 4 patients (19%), however,

UP.297, Figure 1.



improvement of >10% in eGFR was seen in 9 patients (43%). In 12 patients with preoperative eGFR over 60, 11 (92%) had kept their renal functions with over 60 ml/min/1.73m². There are no patients who need hemodialysis during the follow-up period.

Conclusion: In our selected cases, most of the patients could preserve renal function one year after DU. Some cases improved postoperative eGFR and about a half of cases maintained eGFR >60 ml/min/1.73m² perioperatively.

UP.298

Role of Cyto-reductive Nephrectomy for Metastatic Renal Cell Carcinoma in the Era of Targeted Therapy

Liu Z¹, Chong K¹, Shang Y²

¹Tan Tock Seng Hospital, Singapore; ²Oncology, Johns Hopkins Medicine International, Singapore

Introduction and Objectives: Cyto-reductive nephrectomy (CN) is an established component for the treatment of metastatic renal cell carcinoma (mRCC) with two prospective, randomised trials showing an advantage in overall survival (OS) in patients who underwent CN before immunotherapy. Recent advances in the molecular biology and pathways associated with pathogenesis of renal cell carcinoma (RCC) have led to the development of novel molecular targeted therapies. However, little is known on the role of CN in the era of targeted therapy.

Materials and Methods: A retrospective review of patients with synchronous mRCC who were treated in our institution's Oncology and Urology clinic from January 2008 to October 2013 was conducted. Twenty-seven patients were identified. Fifteen had CN and targeted therapy; seven had CN and then observation of stable metastases with a view of starting targeted therapy if needed; and five had targeted

therapy alone. Targeted therapy was planned to continue until disease progression, intolerable toxicity or death. We compared clinicopathological factors between the group with CN and targeted therapy (Group A) versus the group with targeted therapy alone (Group B). OS was defined as time of diagnosis to death of any cause or to date of last follow-up and time to treatment failure (TTF) was defined as time from initiation of targeted therapy to date of progression, drug cessation or last follow-up. Chi-square tests were used to analyse categorical variables and Student t-tests were used for continuous variables.

Results: Clinicopathological variables did not vary except for Karnofsky performance status. Mean time from CN to initiation of targeted therapy was 9.6 months. Patients in Group A had a mean OS of 27.0 months versus 10.2 months in the Group B and this was statistically significant with a p value of <0.01. Mean TTF was 7 and 6.6 months in Group A and Group B respectively (p = 0.48).

Conclusions: In this retrospective study with its own limitations, CN was independently associated with a prolonged OS in the era of targeted therapy for mRCC.

UP.299

Patient Selection for Renal Cryoablation: Does Preoperative Aspects and Dimensions Used for an Anatomical (PADUA) Nephrometry Scoring Help?

Shearer L, Nair R, Pai A, Gonsalves M, Patel H, Le Roux P, Anderson C
St. George's Hospital, London, UK

Introduction and Objectives: Renal cryoablation has established itself as a minimally invasive treatment option for the management of small renal masses. Its oncological

effectiveness however is hindered by the many anatomical variables of the tumour in question. There currently exists a paucity of tools to aid case selection, with resultant oncological compromise and a potential cost burden on the health sector. The PADUA score is a simple anatomical system that can be used to predict the risk of perioperative complications in patients undergoing nephron-sparing surgery. Our study evaluated oncological and functional outcomes for small renal tumours treated with cryotherapy over a ten-year period using the PADUA nephrometry scoring system.

Materials and Methods: A prospective study of 67 consecutive patients undergoing standard 2 freeze-thaw cycles of renal cryotherapy was performed over 121 months. These were performed laparoscopically initially; more recently a percutaneous approach was introduced. Individual Pre-operative Aspects and Dimensions Used for an Anatomical (PADUA) nephrometry scores (range 6-12) were evaluated against oncological and functional outcomes.

Results: We performed 67 ablations in 67 patients. Median tumour size was 25mm (range: 5-56mm) and 42 masses had PADUA scores of 8 or higher (median follow-up 34 months). Primary therapy failed in 6 cases all of whom had PADUA scores of between 8 and 12. Four failures were considered incomplete initial ablations due to difficulty in targeting. There was no significant change in renal function in all cases.

Conclusion: Patients undergoing renal cryotherapy are generally unsuitable for extirpative surgical treatment. However in selecting patients, the greater the complexity of the tumour the less likely cryotherapy is likely to be beneficial. PADUA scores of 8 or lower and renal tumour size of less than three centimetres are a useful patient selection criterion for successful renal cryotherapy.

UP.300

Open Partial Nephrectomy Using Parenchymal Clamping

Lezrek M, Bazine K, Tazi H, Badraoui M, El Kamari M, Beddouch A, Qarro A, Alami M
Dept. of Urology, Military Hospital Moulay Ismail, Meknes, Morocco

Introduction and Objectives: We present our experience of open partial nephrectomy, for tumors, with parenchymal clamping.

Materials and Methods: Between May 2003 and February 2014, 20 patients (9 men and 11 women) were treated with this technique. The patients had an average age of 56 years-old (35 to 78). The tumors were discovered incidentally in all the patients. Thirteen tumors were localized in the right kidney and 8 in the left kidney. Preoperative renal function was normal in all the cases. The average tumor size was 5.66 cm (3-9.4). The tumor was in the upper, middle, and lower pole in 8, 6 and 7 patients.

Fifteen were peripheral and 6 were central tumors. Through a flank incision, nephrolisis is performed. The renal vessels are isolated, but not clamped. One curved vascular or gastrointestinal clamp is positioned around the tumor with a 5 mm parenchyma margin, sometimes 2 clamps are necessary. In the first 14 cases, the tumorectomy is performed with electrocautery and then the small vessels and the calyceal system are oversewn with figure-of-8-sutures. Renal reconstruction is performed over fat bolsters or Surgicel. Lastly, the tumorectomy is performed with progressive blunt dissection, and clamping of vascular and calyceal structures; then, they are sharply cut and ligated. Renal reconstruction is performed with only figure-of-8-sutures. For central tumors, the renal artery was clamped only during tumorectomy. Parenchymal clamping is performed for renal reconstruction.

Results: The average duration of parenchymal clamping was 35 min and the mean intervention time was 135 min. For central tumors, the renal artery was clamped for 5 minutes in 5 patients and 20 minutes in 1. The average operative bleeding was 150 ml. The mean hospital stay was 5 days. All the tumors have negative margins. Seventeen tumors were RCC and 4 were oncocytoma. With a follow-up of 2-76 months, there is no evidence of recurrence in 19 patients. One patient presented with pulmonary metastasis after 36-months. Another patient had a left nephrectomy for local recurrence after 40-months.

Conclusion: Partial nephrectomy with parenchymal clamping is an attractive, safe, and effective technique in the conservative surgery of the kidney.

UP301

Are We Really Performing More Partial Nephrectomy? Retrospective Analysis of a Single Centre in Hong Kong

Cheng C, Lai T, Kan R, Chan M, Chu P, Man C

Tuen Mun Hospital, Hong Kong

Introduction and Objectives: To retrospectively analyze the trend of partial nephrectomy for renal mass in Tuen Mun Hospital (TMH).

Materials and Methods: From Jan 2004 to Dec 2013, adult patients (> 18 years) who underwent partial nephrectomy for renal mass were retrospectively analyzed. Patient demographics, indication of operation, surgical approach, tumor characteristics and oncological outcome were analyzed. Data of former 5 years (2004 – 2008) was compared to that of latter 5 years (2009-2013) statistically.

Results: Sixty five patients (35 male, 30 female), with mean age 58.7 years (range 23-85) were included. There were 28 left partial and 37 right partial. The number of absolutes, relative and elective indications was 6, 25 and 34

respectively. The mean R.E.N.A.L. nephrometry score was 7.27 (range 4-11). Only one case was performed laparoscopically, the others were open partial. Histologically there were 43 cases of renal cell carcinoma of different T stage (33 pT1a tumor, 7 pT1b, 1 pT2a, 1 pT3a, and 1 pT4), 20 angiomyolipoma and 2 simple cysts. Fifty four cases had negative resection margin. Two cancer cases recurred locally (recurrence rate 3%) and 1 metastasized (metastatic rate 1.5%). The cancer specific mortality was 0%. Comparing former 5 years to latter 5 years, the number of operations per year was tripled (3.2 vs. 9.8) with significantly more elderly cases (mean age 48 vs. 61.2, $p = 0.012$) and the proportion of elective indication (25% vs. 61%, $p = 0.032$) and cancer cases (40% vs. 78%, $p = 0.02$) was significantly increased, while the mean R.E.N.A.L. score, tumor T stage and resection margin involvement did not differ significantly.

Conclusion: Since the advantages of nephron sparing surgery over radical nephrectomy were well recognized worldwide, we tended to perform more partial nephrectomy in recent years and shifted towards operating on older patients, normal functioning kidney and radiologically malignant renal tumor. The oncological outcome was satisfactory.

UP302

Tumour Size Alone Rather Than Overall PADUA Score Predicts Oncological Success after Cryotherapy for Small Renal Masses

Shearer L, Ayres B, Sooriakumaran P, Ting N, Issa R, Le Roux P, Patel U, Munneke G, Gonzales M, Anderson C

St George's Hospital, London, UK

Introduction and Objectives: Cryoablation is emerging as a viable alternative to extirpative surgery for the management of small renal masses. Our objective was to evaluate whether tumour size and PADUA scores are valuable in predicting treatment response.

Materials and Methods: Data was collected prospectively onto a secure database. Patients had two 10-minute freeze-thaw cycles and were biopsied during the procedure. Tumour size and overall PADUA scores were calculated on all cases.

Results: We performed 68 ablations in 62 patients. Median tumour size was 25mm (IQR 20-31mm); median follow-up of the entire cohort was 32 months (10-65m). Nine ablations (13.2%) failed, due to persistent disease ($n=8$), or intraoperative tumour fracture ($n=1$); median time to failure was 19m (IQR 7-26). Median size (PADUA) of failed tumours was 30mm (8); there was no statistically significant difference in PADUA scores compared to non-failures, but size was worse for failures ($p=0.03$). Renal function did not decrease to less than 10% baseline in any case regardless of size or

PADUA score.

Conclusions: Cryotherapy does not affect renal function; size is important in predicting treatment failure and the PADUA classification does not appear to have any incremental value in this risk assessment.

UP303

Does Lymphovascular Invasion Affect Oncological Outcomes in Upper Tract Urothelial Carcinomas?

Chong K, Yeow S, Liu Z

Tan Tock Seng Hospital, Singapore

Introduction and Objectives: Upper tract urothelial carcinomas (UTUCs) have a relatively poor prognosis compared to other genitourinary cancers, contributed by their advanced presentation at diagnosis and significant rate of post-surgical recurrence. Lymphovascular invasion has been found in the European population to be an independent prognostic factor for worse oncological outcomes. We aimed to assess the impact of LVI as well as other clinicopathological variables on the overall survival (OS) and disease-free survival (DFS) in the Asian population.

Materials and Methods: All patients who underwent nephroureterectomy for non-metastatic UTUC at our centre over a period of 5 years were retrospectively identified. Prognostic factors examined included patient characteristics, disease characteristics and preoperative biochemical data. Each factor was analysed via Log-rank test and multivariate Cox regression model for statistical significance.

Results: Among all the patients, 53.5% had disease recurrence with 13 (56.6%) recurring within 12 months and 21 (91.3%) within 24 months. Six patients demised, of which 5 were due to disease. The presence of LVI was found to have > 50% mortality within 24 months. Lymphovascular invasion was found to be predictive of a worse overall survival on both univariate ($p = 0.01$) and multivariate analysis ($p = 0.031$, 95% CI 0.34 – 0.85). However it was not significant in predicting DFS. Tumour stage and nodal status were each found to be predictive of disease recurrence. Presence of CIS ($p = 0.032$, HR 4.75) and diabetics ($p = 0.015$, HR 6.76) were independently associated with a worse DFS. Interestingly, the presence of previous bladder tumour was associated with a better DFS on multivariate analysis ($p = 0.015$, HR 0.19).

Conclusion: LVI has shown to be a good predictor of poor survival in UTUC; its effect on DFS may not have been evident in our study due to its associated high mortality rate. For risk stratification in DFS, tumour stage, nodal status, presence of CIS, and diabetic status may be used to guide postoperative follow-up to allow timely detection of tumour recurrences.

UP304

Predictors of Early Complications after Nephrectomy for Renal Tumors

Mahmoud M, Algammal M, El Ewedi S, Khaled S, Saleh S

Al Azhar University Hospitals, Cairo, Egypt

Introduction and Objectives: To evaluate and predict the risk factors for early postoperative morbidity and mortality in patients with renal tumors, undergoing surgical removal of the tumor.

Materials and Methods: The medical records of the patients underwent radical nephrectomy (RN), partial nephrectomy (PN) or nephroureterectomy (NU) due to renal masses, during the period from March 2008 to December 2012, were reviewed. Demographic patient data, Clinical patient data, tumor characteristics, Operative surgical data were evaluated and correlated to the early post-operative complications.

Results: Eighteen patients underwent RN, 8 PN and 3 patients underwent (RNU) with excision of bladder cuff. Eleven patients (38%) had pre-operative co-morbid diseases. (55.2%) of the studied patients developed intra-operative complications and (62%) of them developed post-operative complications. Peri-operative bleeding recorded in 12 (41.4%) patients. Pleural injury occurred in (20.6%) of patients, Paralytic ileus in (17.2%) of patients, GIT injury in (17.2%), and IVC injury in (17.2%) of patients, UTI in (13.7%), DVT in (6.9%), impaired renal function in (10.3%), wound infection in (10.3%), Pneumothorax in (10.3%), while urinary fistula recorded in one patient had PN (3.4%). One patient in (17.2%) died in the Early Post-operative period. Male patients had increased risk of IVC injury (P value= 0.009), decreased renal function (P value = 0.050), and deep wound infection (P value = 0.050). Hypertension had a strong positive correlation to post-operative bleeding (P value = 0.036). Coronary artery diseases had a positive correlation to early post-operative death (P value = 0.027). There is a positive correlation between the lower experience of the surgeons and Development of IVC (P value = 0.031), GIT injury (P value = 0.044), intra-operative bleeding (P Value = 0.024) and post-operative paralytic ileus (P value = 0.044). Lumbar approach had strong correlation to development of pleural injury intra-operatively which developed in 6 patients (P value = 0.031). Trans-abdominal approach had strong correlation to development post-operative paralytic ileus (P value = 0.036).

Conclusion: The study revealed that male gender, pre-operative co-morbidities, surgical approach and surgeon experience are essential risk factors for development of peri-operative complications. Also development of these complications increased duration of post operative hospital stay.

UP305

Pre-Operative Nephrometry Scores Do Not Influence Decision-Making in the Surgical Management of Localised Renal Cell Carcinoma

Roy A¹, Ahmed D¹, Powles T², Peters J³, Patki P¹

¹Dept. of Urology, The Royal London Hospital (Bart's Health), London, UK; ²Dept. of Oncology, St. Bartholemew's Hospital (Bart's Health), London, UK; ³Dept. of Urology, Whipps Cross University Hospital (Bart's Health), London, UK

Introduction and Objectives: European Association of Urology guidelines suggest that nephron sparing surgery (NSS) should be first-line treatment for localised RCC. Radical nephrectomy (RN) should be considered where NSS is technically unfeasible, the tumour is locally advanced or the patient is medically unfit. RENAL and PADUA nephrometry scores may predict outcomes after NSS with a score >8 suggesting increased anatomical complexity. The decision to perform RN or NSS is made within the context of an MDT, based on radiological staging. We aimed to identify whether retrospective assessment of renal nephrometry had any bearing on the ultimate decision made with regards to surgical technique.

Materials and Methods: We retrospectively analysed all patients who had undergone RN/ NSS at our institution during a sixteen month period from September 2012. All patients and their imaging were reviewed at a specialist renal MDT and the recommended surgical outcome recorded. The pre-operative imaging was re-reviewed and RENAL and PADUA nephrometry scores calculated for each case.

Results: Sixty-six patients underwent renal surgery during the period of study of which 54 were available for review (32 male, mean age 60+/-12yrs). Cases with TCC and where imaging was unavailable were excluded. Seven partial nephrectomies (1 open (7 VHL tumours), 6 laparoscopic) and 47 radical nephrectomies (12 open, 35 laparoscopic) were performed. Nephrometry scores were elevated in all patients undergoing open radical nephrectomy (RENAL 9-12, PADUA 11-13). Laparoscopic radical nephrectomy was performed in six patients with nephrometry scores <8 (multifocal tumours 3, medically unfit (ASA3) 1, post RFA recurrence 1 and patient choice 1). The remainder of the radical nephrectomy cases had elevated nephrometry scores (RENAL 8-10, PADUA 8-13). Of the 6 patients undergoing laparoscopic partial nephrectomy, one had an elevated nephrometry score (RENAL 9, PADUA 11) but with no evident adverse sequelae.

Conclusion: Nephrometry scores appear to correlate with clinical decision-making, however are not necessarily required to determine the type of surgery that will be undertaken. Nephrometry scoring may be helpful in allowing

comparison of series by allowing stratification by complexity.

UP307

The Association between the Anatomical Features of Renal Tumors and the Functional Outcomes of Robot-Assisted Partial Nephrectomy

Lee J¹, Cho S², Jeon C³, Ko K³, Kim H³

¹Sanggye Paik Hospital, Inje University College of Medicine, Seoul, South Korea; ²SMG-SNU Boramae Medical Center, Seoul, South Korea; ³Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objectives: To evaluate associations between PADUA scores, which represent the anatomical features of renal tumors, and postoperative renal functions in patients after robot-assisted partial nephrectomy (RAPN) and warm ischemic times (WITs).

Materials and Methods: The clinical records of 106 patients, who underwent RAPN for a single localized renal tumor between April 2009 and June 2012, were reviewed. Postoperative renal function was evaluated using estimated glomerular filtration rate (eGFR) in 85 patients that were followed for at least 6 months. PADUA scores for renal tumors were calculated using contrast-enhanced CT images, if needed, along with MR images in some cases.

Results: PADUA scores were significantly correlated with WITs (p = 0.019) and percent change in eGFR at 6 months postoperatively (p = 0.005). PADUA score (continuous variable, OR: 1.694; p = 0.007) and high risk (PADUA score ≥10, OR: 5.429; p = 0.020) were significantly associated with a WIT of ≥30 minutes by multivariate analysis. An increase in PADUA score of 1 point was associated with an eGFR decrease of >20% at 6 months after RAPN (OR: 1.799; p = 0.076). In addition, high risk (PADUA score ≥10, OR: 13.965; p = 0.003) was found to be an independent predictor of an eGFR decrease of >20% at 6 months after RAPN.

Conclusion: The PADUA classification provides a reliable means of predicting WIT and postoperative renal functional outcome after RAPN. Furthermore, the study suggests that anatomical aspects of renal tumors are associated with functional outcome after RAPN.

UP308

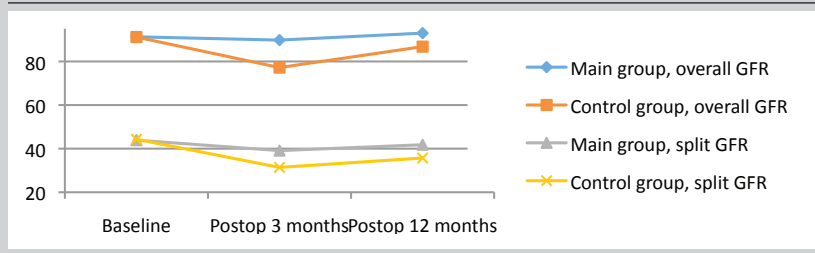
Results of Randomized Trial of Ischemia Effect during Partial Resection on Kidney Function

Voylenko O, Stakhovskiy O, Vitruk I, Stakhovskiy E

National Cancer Institute, Kiev, Ukraine

Introduction and Objectives: Use of central ischemia during nephron-sparing surgery (NSS) is common practice of bleeding control. Ischemia impacts kidney function with further

UP308, Figure 1.



development of chronic kidney disease (CKD). The objective of this study was to analyze ischemia effect after NSS on kidney function in long postoperative period.

Materials and Methods: Prospective randomized trial was initiated to study ischemia effect on kidney function during NSS. After randomization all the patients underwent NSS: in study group 87 (50.9%) patients had NSS with no ischemia and in control group, in 84 (49.1%) ischemia was used during the procedure. Both groups were equal in mean patients age, male/female distribution, mean tumor size, overall GFR and ECOG status. Split kidney GFR was evaluated with nephroscintigraphy.

Results: Ischemia significantly decreased intraoperative blood loss from 397.7 ± 136.9 ml to 332.7 ± 162.3 ml, ($p < 0.05$). Overall and split GFR on the tumor side are presented in Figure 1. Overall GFR in control group decreased 3 months postoperatively from 91.2 ± 21.0 to 77.2 ± 15.4 ml/min ($p < 0.05$) and recovered to 86.8 ± 18.9 ml/min after 12 months of follow-up. In group without ischemia overall GFR did not show significant change with time: 91.3 ± 20.7 to 89.8 ± 16.3 and 93.0 ± 16.1 ml/min respectively. Analysis of split GFR on effected side showed decrease in GFR from 44.3 ± 12.4 baseline to 31.4 ± 10.2 in 3 months ($p < 0.05$) and partial recovery till 35.7 ± 11.4 ml/min in 1 year. In main group GFR values in affected kidney did not change in time significantly 43.9 ± 10.2 to 39.1 ± 10.2 and 41.8 ± 7.2 ml/min respectively at baseline, 3 and 12 months postoperatively.

Conclusions: NSS with ischemia results in significant decrease of overall and split GFR of kidney with tumor ($p < 0.05$). No significant difference was seen in GFR in patients without ischemia. Avoiding ischemia during NSS may prevent development of CKD.

UP309

Efficacy of Axitinib as Third- or Later Line Treatment for Patients with Metastatic Renal Cell Carcinoma

Mizuno R, Asanuma H, Oya M

Dept. of Urology, Keio University, School of Medicine, Tokyo, Japan

Introduction and Objectives: Development of molecular targeted therapy, including vascular endothelial growth factor receptor (VEGFR)-tyrosine kinase inhibitor (TKI) and mammalian

target of rapamycin inhibitor (mTORI), have achieved improvements in the treatment of metastatic renal cell carcinoma (mRCC). In view of the complete lack of information in the third or later line settings, we retrospectively evaluated the efficacy and tolerability of axitinib treatment in mRCC patients pretreated with both vascular endothelial growth factor receptor VEGFR-TKI and mTORI.

Materials and Methods: A total of 13, 10 male and 3 female Japanese patients, with a mean age of 57.8 years (range 18–79), with mRCC, who progressed despite treatment with both at least one VEGFR-TKI and one mTORI, were treated with axitinib in the third or later line settings. Ten patients had clear cell, and remaining 3 patients had non-clear cell histology. They have received a median of 3 prior therapies. All patients had Karnofsky performance status 70–100.

Results: In all patients axitinib was started with 5mg twice daily, and 4 patients experienced dose reduction. Response to axitinib was PR, SD, PD of 2 (15.4%), 9 (69.2%), and 2 (15.4%), respectively. The median PFS was 9.8 months. The median OS was not reached. The most common AEs were hypertension ($n=10$) and hoarseness ($n=8$), which were manageable. Severe AEs which resulted in cessation of axitinib were grade 3 proteinuria ($n=1$) and grade 2 perforated diverticulitis ($n=1$), which were managed with a conservative approach. In this study, axitinib demonstrated an acceptable safety and tolerability profile even in the later line settings.

Conclusion: Our findings suggest that although there is wide variability in the treatment and management patterns, targeting VEGF pathway with axitinib seems to have potency for the subset of patients heavily pretreated with both VEGFR-TKI and mTORI.

UP310

Treatment Outcome of Japanese Metastatic Renal Cell Carcinoma Patients in the Era of Molecular-Targeted Drugs: A Retrospective Study from a Single Medical Center

Ushijima M, Naito S, Ichihayashi O, Takai S, Yagi M, Sakurai T, Kawazoe H, Kato T, Nagaoka A, Tomita Y

Yamagata University, Yamagata, Japan

Introduction and Objectives: We demonstrated that the median overall survival (OS)

time in Japanese patients with metastatic renal cell carcinoma (mRCC) treated with cytokine-based therapies was 21.5 months, about twice as long as in prior reports on mRCC from western countries (Naito et al., Eur Urol, 2010). Current treatment for mRCC has changed greatly since 2008, because several molecular-targeted drugs (MTDs) have been brought into clinical use in Japan. The aim of the present study is to evaluate the efficacy of MTDs-based therapies in Japanese mRCC patients in the post-cytokine era.

Materials and Methods: We retrospectively collected clinical data from the medical archives of consecutive 72 mRCC patients treated with MTDs who were followed up in our institution from Nov. 1, 2007 to July 31, 2013. The end point was set overall survival (OS) time calculated from first diagnosis of mRCC to death or last follow-up. MTDs administered in the present study were sorafenib, sunitinib, axitinib, pazopanib, everolimus and temsirolimus, some of which were given sequentially at the disease progression.

Results: The median age was 63 year (range: 41–85 year) and 84.7% patients was males. Fifty-one subjects underwent nephrectomy for primary RCC, and 19 patients received metastasectomy. Pathological examination showed clear cell carcinoma ($n=55$), clear cell and papillary carcinoma ($n=1$), collecting duct carcinoma ($n=1$). Tumor pathology was not determined in 15 cases. Forty-one subjects were alive and 31 dead on July 31 in 2013, and the median OS time was estimated 43.1 months with Kaplan-Meier method. Based upon Memorial Sloan-Kettering Cancer Center (MSKCC) criteria, the study patients were categorized into three groups having favorable ($n=10$), intermediate ($n=42$) and poor risk ($n=8$). MSKCC criteria were unavailable in 12 cases due to data missing. In the favorable risk group, the mortality did not fall below 50% in the follow-up duration, with 2-year survival of 90.0%. The median OS time and 2-year survival were 34.2 months and 60.4% for the intermediate risk group, respectively. Patients with poor risk had the median OS duration of 7.8 months.

Conclusion: Prognostic improvement of MTDs-treated mRCC cases was indicated, especially for patients with favorable and intermediate risk.

UP311

Endoscopic Management of Upper Tract Urothelial Cancer: Is It Safe?

Arumainayagam N, Rajaretnam N, Gibbons N, Hrouda D, Shamsuddin A, DasGupta R
Charing Cross Hospital, Imperial Healthcare NHS Trust, London, UK

Introduction and Objectives: The gold standard for upper tract urothelial cancer (UTUC) currently remains nephroureterectomy (NU).

However, endourological management has been shown to allow good long-term outcomes in two recently published large studies. Several questions remain about how best to identify predictive factors, how to improve staging, and whether biopsies provide adequate grade assessment to direct treatment. We review our experience of endourological management in patients with elective and absolute indications for a nephron-sparing approach for UTUC over a 40 month period.

Materials and Methods: We retrospectively reviewed our tertiary centre experience of UTUC from October 2009 to February 2013, assessing the initial grading, recurrence rates, progression to NU and overall mortality.

Results: A total of 41 patients (24 male, 17 female), mean age 69 years, underwent endoscopic control of UTUC by flexible ureterorenoscopy or rigid ureteroscopy and laser ablation. Four patients opted to have endoscopic management of their UTUC rather than NU, despite having normal functioning contralateral kidneys and no comorbidity precluding them from NU. The remaining 37 all had endoscopic management due to risk of becoming dialysis dependent if NU was undertaken. Follow-up data was available for 26/41 patients, as well as baseline histology at initial assessment. The results are summarized in Table 1.

Conclusion: Endoscopic control of UTUC is feasible and safe. G3 disease and CIS, however, have a high likelihood of harbouring worse true pathological staging (5/9 and 2/2 proceeding to NU respectively); these cases require particularly close attention during follow-up for safe management.

UP312

Transvesicoscopic Repair of Vesicovaginal Fistula: Short-Term Follow-Up

Guntaka A, Nerli R, Muddegoudra A, Devaraju S

Dept. of Urology, KLES Kidney Foundation, KLE University's JN Medical College, Belgaum, India

Introduction and Objectives: We report our series of patients with VVF treated by

transvesicoscopic approach. We analyzed the outcome of this repair in women of reproductive age group.

Materials and Methods: Patients of reproductive age group with VVF formed the study group. Only single fistulas which were <10 mm in diameter and situated in the supratrighal region were included. Patients were randomized to undergo either laparoscopic transperitoneal or transvesicoscopic repair.

Results: During the study period Jan 2009 to Dec 2012, 15 women underwent laparoscopic repair of VVF. Eight of these women underwent laparoscopic transperitoneal repair, whereas the remaining seven underwent transvesicoscopic repair.

Conclusions: Transvesicoscopic as well as laparoscopic transperitoneal repair of VVF carries all the advantages of laparoscopy including minimal invasiveness, less morbidity, shorter hospital stay, early recovery, and better cosmetic appearance. The disadvantages of standard transabdominal laparoscopy, such as injury to other intraperitoneal organs, need for peritoneal drain, prolonged ileus, bleeding, are avoided in this technique. Women in the reproductive age group return to early sexual activity and have a decreased incidence of urinary voiding dysfunction at 6 months follow-up.

UP313

Laser Replaces Scalpel in Surgery: How Shows Prostate-Therapy

Hainz H

Rheinbach, Germany

Introduction/Objectives: Increase of ageing population worldwide requires more affordable minimal invasive therapy, e.g. for BPE and CaP in Germany. In urology 1901 anesthesia enabled Freyeroperation; electricity 1920 TURP - since 1970 standard. Hofstetter lasered 1991 prostate (ILCP). In 2011 in USA 80% BPE operations were Photoselective Laservaporisation (PVP) - mostly as outpatient therapy; 12/2012 in France as standard declared.

Materials/Methods: Einstein's formula $E=mc^2$ i.e. 500gr Uranium extinguished 1945

Hiroshima. People's silhouettes in pavement led 1954 in East/West to theory "Light Amplification by Selected Emitted Radiation". In 1961, first laser set was build and in 1983 S.G.Bown lasered a liver tumor. Now portable tools work 100000 maintenance-free hours with hundreds Watt in 30 000 wave-lengths. With small glass fibers we practice bio stimulation, coagulation, carbonization and atomic photo ablation or frankly said cutting, sawing, planeing and drilling in tissue, teeth and bones. Now beam reflection informs when you come into or out a tumor and by Raman Effect a spectroscopic tissue diagnostic is tested.

Results: Own laser experience (1988-2006/ legal age limit) began with Medilas100 and reterilized fibers transurethral 4000 urothel-tumors and later BPE. In 1294 cases (1.10.94-30.11.2000). "Our" invasive coagulation (pushing "burning fiber" NdYAG cw 40W into adenoma and drawing it back slowly) made 14 urinary retentions (necrotic tissue), 3 SIRS and 2 periprostatic abscess and laser cutting (fiber with 50Wcw = "scalpel blade" in urethroscope) 39 bleeding with electrocoagulation and 5 blood transfusions. Thereafter always first invasive coagulation followed by cutting reduced complication rate once more and we were as fast as with TURP. Since 1996 a new 50W980nm-Diodelaser enabled 90% incisions and reduced cost in our unit to 45% of pre-laser-era (presented at 54 congresses).

Conclusions: Laser work on any plug in megaclinics or Red Cross/-Halvemoon-tent and now in all medical subspecialties. Young colleagues can lead our <key hole surgery> with miniature instruments and laser combined to all kinds of electromagnetic devices into future. In OncoRay-Center Universitätsklinik Dresden the Protonlaser DRACO is tested. It destroys exactly tumors without touching the skin. Why urologists don't use laser in daily treatment e.g. PVP in CaP and publish their results online.

UP311, Table 1.

| GRADE | NUMBER | Recurrence free (mean follow-up in months) | Tumour recurrence (mean time to recurrence in months) (range) | Number of patient proceeding eventually to NU | NU grade and stage | No follow-up documented | Death |
|-----------|--------|--|---|---|-------------------------------|-------------------------|-------|
| G1 | 4 | 2 (30) | 1 (3) | 1 | No cancer | 0 | 0 |
| G2 | 11 | 1 (48) | 6 (12) (3 - 24mths) | 4 | G2pTa (3) G3pT2 (1) | 0 | 0 |
| G3 | 9 | 1 (24) | 0 | 5 | G3pTa (2) G3pT3 (2) G2pT1 (1) | 2 | 1 |
| CIS alone | 2 | 0 | 0 | 2 | G3pT2 (1) G3pT4 (1) | 0 | 0 |

UP314

Optimising Abdominal Wound Drainage in the Development of an Enhanced Recovery Programme in Renal Laparoscopic Surgery

Mahrous A, Rajpal S, Cartledge J

St James's University Hospital, Leeds, UK

Introduction and Objectives: We routinely place a wound drain following laparoscopic renal surgery. The presences of a wound drain increases analgesic usage and may prolong length of stay. We wish to clarify drain usage as part of the ongoing development of an enhanced recovery programme in renal surgery. The aim of this study is to evaluate wound drainage following laparoscopic renal surgery to identify whether wound drainage is routinely necessary or if a drain could be removed in the early postoperative period.

Materials and Methods: We reviewed drain output in a single surgeon series for 6 months. Data regarding indication, tumour size and postoperative hourly drain output and timing of drain removal was collected.

Results: Thirty four total nephrectomies (4 benign, 30 malignant) and 15 partial nephrectomies were performed; median tumour size 4.5 cm (2-10cm). Two patients following total nephrectomy were excluded from the analysis due to incomplete charts. Mean drain output in all patients was 135.2 mL [range 10-780 mL]. Mean drain output for total nephrectomies was 110 mL, 189 mL for partials. 39 patients (82.9%) had drains out within 24 hours (30 total and 9 partial). Eighteen patients (56%) in the radical nephrectomy group had less than 50mL drainage beyond 4 hours. Six patients (40%) had insignificant drainage beyond 4 hours following partial nephrectomy. If the drain was removed routinely at 4 hours post-operatively following all total nephrectomy the mean drainage that would have been missed was 51.4 mL (7-150mL).

Conclusion: Drain output following laparoscopic radical nephrectomy was generally low and the need for leaving a drain can be questioned. If a drain is left it is safe to remove after four hours.

UP315

Intraoperative Navigation Based on 3D Reconstruction of Operational Zone for Videoendoscopic Partial NephrectomyDubrovin V¹, Egoshin A¹, Furman Y², Rozhentsov A², Eruslanov R², Chernishov D², Klugev K², Baev A², Kudryavchev A²¹*Republic Clinical Hospital, Yoshkar-Ola, Mari El Republic, Russia;* ²*Volga State University of Technology, Yoshkar-Ola, Mari El Republic, Russia*

Introduction and Objectives: Laparoscopic partial nephrectomy holds a leading position in the management of small renal tumors. Delimitation of resection for nephron-sparing surgery in the treatment of renal tumors is an actual problem. We present the method of intraoperative navigation based on virtual simulation during videoendoscopic partial nephrectomy for kidney tumors.

Materials and Methods: A special computer program has been developed, that created a three-dimensional image of operative space on the basis of preoperational tomographic data of a concrete patient. We used hardware-software complex (HSC) for virtual modeling of the surgery zone. The complex consists of a PC, original software and mechanical 3D digitizer. The HSC allows the forming of a virtual 3D model of a patient according to the results of tomography examination. The original method of matching the system of coordinates of a virtual model with the patient was offered. The procedure was conducted under the conditions warm ischemia after mobilization of the kidney, partial nephrectomy was performed by observing the image of 3D organ model agreed with the video image of the kidney tumor. The method was originally performed for the 5 patients with small renal tumors, who needed surgical treatment, their average age was 47.5 (in the range from 38 to 54) years, men – 2 (40%), women – 3 (60%). Size of the tumors were 3.0 (2.0 – 4.0) cm, they were located in the lower poles of the kidneys.

Results: Average time of an operation performed with the use of the computerized choice of the surgical approach was 110.5 (80-155) minutes. Warm ischemia time was 24.5 (19

– 28 min). There were no complications during the operation and in the post-operative period. There were no cases of positive surgical margins.

Conclusions: Usage of the introduced computer program allows the surgeon to determine compliance with the contours of the 3D models of the body shown in the video monitor. The technique provides additional possibilities for the surgeon in selecting borders in partial nephrectomy. This method is particularly perspective for teaching beginner surgeons, it can help them acquire skills in minimally invasive surgery.

UP316

Antegrade Double-J Ureteral Stent Insertion: Experiences over the Past 8 Years

Weltjings S, van der Meer R, van Erkel A, Roshani H, Elzevier H, van Dijk L, van Overhagen H

Hagaziekenhuis, Den Haag, The Netherlands

Introduction and Objectives: A double-J stent (JJ) can be used as a drainage method in case the upper urinary tract is obstructed. Antegrade ureteral stenting is usually performed if the retrograde approach has not been successful. We evaluate the indications, the success rate and the complications of antegrade JJ insertion.

Materials and Methods: A hundred individual patients were included in this study between 2005 and 2013 in two teaching hospitals in the Netherlands. A total of 130 antegrade JJ insertions were performed by interventional radiologists. Indications for antegrade stenting are mentioned in Table 1. All procedures were carried out under local anaesthetic. Antibiotic prophylaxis was given on indication.

Results: Success rate in the 130 procedures of antegrade JJ stent insertion was 96%. Ureteric stricture was the reason of failure in the remaining 5 procedures, of which 3 were with transplanted kidneys. In 21 patients (16%), retrograde placement was carried out and failed. In all of these cases, antegrade insertion was successful. Predilatation of the stricture using a PTA balloon was necessary in 13 procedures (10%). Stent insertion was carried out simultaneously at the time of percutaneous nephrostomy in 16% of total procedures. Eight complicated procedures (6%) were reported. Six infections, 1 ureteric perforation and 1 JJ dislocation occurred.

Conclusion: Antegrade JJ stenting is feasible and safe. It should be considered as a treatment of choice, especially when the retrograde approach fails or is contra indicated. One should be aware of the complications as reported.

UP314, Table 1. Analysis of drain charts to identify timing when output becomes insignificant (< 50ml)

| Time after procedure (hours) | No of patients (Total, Partial) |
|------------------------------|---------------------------------|
| 4 | 24 |
| 8 | 3 |
| 12 | 5 |
| 16 | 3 |
| 20 | 1 |
| 24 | 5 |
| 24-69 | 6 (4 partial - 2 radical) |

UP.316, Table 1. Indications for antegrade JJ stent insertion

| Indication JJ | Number of procedures (n) | Percentage of total (%) |
|-------------------------------------|--------------------------|-------------------------|
| Tumor obstruction | 63 | 48.5 |
| Scar tissue | 32 | 24.6 |
| Urolithiasis | 12 | 9.0 |
| Obstruction / leakage postoperative | 10 | 7.7 |
| Retroperitoneal fibrosis | 6 | 4.6 |
| Obstruction by unknown cause | 3 | 2.3 |
| Infection | 2 | 1.5 |
| Endometriosis | 2 | 1.5 |
| Total | 130 | 100 |

UP.317

Erectile Dysfunction following Focal Therapy Using HIFU: Analysis of Risk Factors for Developing ED from a Combined Analysis of 3 Prospective Trials

Yap T, Ahmed H, Hindley R, Dickinson L, Guillaumier S, McCartan N, Charman S, Emberton M, Minhas S
University College Hospital, London, UK

Introduction and Objectives: Focal ablation of prostate cancer is a treatment option in localized prostate cancer that can potentially reduce the risk of erectile dysfunction. We aimed to determine independent associations for erectile dysfunction in patients receiving focal therapy for prostate cancer using the combined outcomes from 3 prospective IRB-approved trials.

Materials and Methods: A total of 116 men with prostate cancer (PSA ≤ 15 ng/mL, Gleason ≤ 4+3, stage ≤ T3aN0M0) treated with focal HIFU were included. Patients received focal HIFU, delivered to cancer lesions, with a margin of normal tissue, identified on multi-parametric MRI and template prostate-mapping biopsies. A linear regression to assess whether any baseline factors (Age, Charlson comorbidity score, IIEF, IPSS and EPIC scores) were associated with IIEF scores at 12 months was carried out, adjusting for baseline IIEF.

Results: Change in erectile function post-operatively is only significantly associated with preoperative total IIEF and IIEF-erectile function scores. For each unit increase of IIEF 15 at baseline, the mean increase at 12 months in total IIEF was 0.60 (95%CI 0.42–0.78, $p < 0.01$) and mean improvement in IIEF-erectile was 0.73 (95% CI 0.43–0.80, $p < 0.01$). Age as well as pre-operative Charlson co-morbidity scores (with and without adjustment for prostate cancer), IPSS, IPSS-quality of life and EPIC continence scores were not found to be independently associated with total IIEF & IIEF-erectile scores at 12 months.

Conclusion: Other than baseline IIEF scores, there seems to be no association with the variables such as Charlson, IPSS, EPIC and IPSS QoL scores with IIEF scores at 12 months.

Interestingly, the lack of association extends to age ($p = 0.866$). This is a heterogeneous grouping of variables, which does not take into account temporally influenced post-operative changes. However, focal therapy may represent a suitable alternative for men of any age or comorbidity wishing to maintain erectile function.

UP.318

How to Improve Vision of Cystoscopy in Difficult Cases?

Aboelmagd M, Barakat T, Al Shareef J
Dept. of Urology, Al-Hada Armed Forces Hospital, Taif, Saudi Arabia

Introduction and Objectives: There is a problem in vision of cystoscopy in certain cases including malignant contracted bladder, haemorrhagic cystitis, limited bladder capacity, neurogenic bladder and gross haematuria, which may lead to failure of screening the bladder, fixation of stents, taking biopsy and/or haemostasis. Up to our knowledge there is no reports mentioned the use of continuous irrigation cystoscopy in improving vision in such cases. Objective: To evaluate the effectiveness of using continuous irrigation sheath for improving the vision of cystoscopy when the vision is poor in such above mentioned cases.

Materials and Methods: Between May 2013 and February 2014, continuous irrigation cystoscopy was used in 10 cases where there is a poor vision by ordinary cystoscopy, 4 cases of neurogenic bladder, 3 with bladder tumor filling most of the bladder and 3 with gross haematuria. The outcome was to compare quality of vision between the continuous irrigation cystoscopy and the ordinary cystoscopy.

Results: In all cases, the use of the continuous irrigation cystoscopy showed significantly improvement in quality of vision in comparison to the ordinary cystoscopy and success in taking biopsy, stent fixation or screening of the bladder which failed by ordinary cystoscopy in view of poor vision. Description of Cystoscopy with Continuous irrigation: Resect scope 24 FG continuous irrigation with long bridge.

Conclusions: The use of the continuous irrigation cystoscopy considered a good option to overcome the poor of vision of the ordinary cystoscopy in certain conditions.

UP.319

Comparison of Initial Results with Robotic-Assisted Laparoscopic Radical Prostatectomy and Minimum-Incision Endoscopic Radical Prostatectomy

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: To investigate the superiority in 2 radical prostatectomies, we compared the initial results of robotic-assisted radical prostatectomy (RARP) to those of minimum-incision endoscopic radical prostatectomy (MIES-RP) performed during the same period at Tosei General Hospital.

Materials and Methods: The study was conducted on a total of 105 patients having undergone radical prostatectomy from April 2010 to March 2014 (52 patients with RARP and 53 with RRP). We investigated surgical stress, cancer control, functional outcomes and complications in both groups.

Results: Surgical stress; operation time was significantly shorter with MIES-RP; however, blood loss and serum total protein loss were significantly less with RARP. The rates of analgesic use and SIRS were similar. Although the date on which taking solid meals resumed did not differ, the duration of indwelling urethral catheter and admission period were significantly shorter with RARP. Cancer control; the rates of positive surgical margin were 21.2% and 18.9% with RARP and MIES-RP, respectively ($p = 0.54$), and biochemical recurrence was seen in 11.0% and 12.1% with RARP and MIES-RP, respectively ($p = 0.73$), which were not significantly different. Continence; urinary continence outcomes with RARP and MIES-RP were not significantly different, the rate of 6 months pad free & pad one were 85.7% and 82.1%; pad free, 98.7% and 93.2%; pad one with RARP and MIES-RP, respectively. Complications: 1 case with a rectal injury was seen in RARP group, but complication rates were 13.7% and 16.2% with RARP and RRP, respectively.

Conclusion: In spite of our initial experience of RARP, surgical stress and complications with RARP were considered to be equivalent or superior to that with MIES-RP. Cancer control and urinary continence showed no significant difference between RARP and MIES-RP.

UP.320

Comparing Robotic, Laparoscopic and Open Cystectomy: A Meta-Analysis

Fonseka T¹, Ahmed K², Froghi S², Dasgupta P², Khan M²

¹King's College London School of Medicine, London, UK; ²MRC Centre for Transplantation, London, UK

Introduction and Objectives: Open radical cystectomy (ORC) remains the gold-standard treatment for muscle-invasive bladder cancer. As minimally invasive technology evolves, good quality evidence is needed to assess whether these new techniques produce better outcomes. We perform a meta-analysis to compare outcomes between robotic assisted radical cystectomy (RARC), Laparoscopic radical cystectomy (LRC) and ORC. Three questions are addressed:

- 1) Does RARC produce better outcomes than LRC?
- 2) Does RARC produce better outcomes than ORC?
- 3) Does LRC produce better outcomes than ORC?

Materials and Methods: A Systematic review of the literature was conducted to collate all studies comparing RARC, LRC and ORC. Data on surgical (operative time (OPT), estimated blood loss (EBL) and length of stay (LOS)) and oncological (lymph node yield (LNY) and positive surgical margins (PSM)) outcomes were

extracted. Subsequently a meta-analysis was performed using a random effects model.

Results: Eighteen studies were selected. A total of 1,735 cases were analyzed, with 997 (57.5%) undergoing ORC, 117 (6.74%) LRC and 621 (35.8%) RARC. Results are summarized in Table 1. Forest plots showed RARC had significantly lower length of stay, estimated blood loss and complication rate compared to ORC. RARC had no better surgical outcomes than LRC, only a longer operative time. LRC had better surgical outcomes than ORC. There were no significant differences regarding oncological outcomes comparing RARC to ORC and LRC to ORC.

Conclusion: RARC is comparable to LRC, yet produces better surgical results than ORC. LRC has better surgical outcomes than ORC, though oncological outcomes are equivalent. Oncological outcomes are also equivalent between RARC and ORC. With the unique technological features of the robotic surgical system and increasing trend of intra-corporeal reconstruction it is likely that RARC will become the surgical option of choice as spread of technology increases.

UP321

Developing Robotic Surgery in Developing Countries

Kamalakkannan R

Apollo Hospitals, Chennai, India

Introduction and Objectives: Urology has developed leaps and bounds in the last decade. Latest ornamantarium is introduction of da Vinci robotic system. The da Vinci robotic surgical system offer minimally invasive option for delicate and complex urological surgery. It is validate by numerous surgical publication. At present it is expensive and not all patients are affordable for this technology. I would like to share our experience in developing this technology in our country.

Materials and Methods: We bought da Vinci robot about 2 years ago and till now we have performed 700 surgeries. We are one of the leading private health care hospitals in the country. The cost seems to be a major obstacle in developing the technology. Second comes the lack of awareness, followed by fear of new technology. Discussion: Developing a robotic program in a developing country involve a huge cost. We have introduced special packages for the certain commonly performed surgery to improve the numbers. It is not only the initial investment of the machine but also the incurring disposable equipment cost. It needs a dedicated team and training of surgeon and the nurses. In addition some insurance are not will to pay for robot cost. To overcome this we have introduced special packages for the surgery cost and introduced special awareness programs in the social and web media and television to spread the awareness.

Results: Having done this many surgeries we believe that the following changes may help to take the technology further. Company can help with reduction of the cost of disposable for specific period of time in developing countries. Company to share the cost of training of surgeon from developing country to make the program viable and sustainable. To provide Recording device free of cost. To provide Simulator for training the trainee surgeons at subsidized price. Surgeons from established centre to visit the new centre for proctoring at regular interval. Insurance company to pay the cost at least partly to reduce the burden to the patient. Group of hospitals to share the robot. Multi-speciality utilisation of the robot in the hospitals. Special packages for cancer patients and children.

Conclusion: In future a mobile robotic unit can be a dream and surgeons from remote areas can have access to the robot. Develop Support group for patients. Online surgeon group to discuss the cases and mentoring.

UP320, Table 1. Results of the Meta-Analysis

| Comparison | Variable | Outcome | Inference |
|--------------|---------------|--|---------------------------|
| RARC vs. LRC | OPT | P = 0.02; mean weighted difference (MWD) = 47.61, 95% confidence interval (CI) = 8.83 to 86.40 | Significantly longer |
| | LOS | P = 0.63; MWD = -1.95, 95% CI = -9.88 to 5.97 | No significant difference |
| | EBL | P = 0.17; MWD = -167.52, 95% CI = -408.48 to 73.44 | No significant difference |
| RARC vs. ORC | OPT | P = < 0.00001; MWD = 64.89, 95% CI = 53.67 to 76.12 | Significantly longer |
| | EBL | P = < 0.00001; MWD = -601.25, 95% CI = -819.33 to -383.18 | Significantly reduced |
| | LOS | P = 0.00001; MWD = -1.60, 95% CI = -2.75 to -0.46 | Significantly reduced |
| | Complications | P = < 0.0001; MWD = 0.53, 95% CI = 0.40 to 0.71 | Significantly reduced |
| | LNY | P = 0.0001; MWD = -1.07, 95% CI = -3.36 to 1.22 | No significant difference |
| | PSM | P = 0.60; MWD = 0.80, 95% CI = 0.47 to 1.37 | No significant difference |
| LRC vs. ORC | OPT | P = 0.12; MWD = 12.99, 95% CI = -3.21 to 29.18 | No significant difference |
| | EBL | P = 0.02; MWD = -508.80, 95% CI = -952.91 to -64.70 | Significantly reduced |
| | LOS | P = < 0.00001; MWD = -3.74, 95% CI = -4.47 to -3.02 | Significantly reduced |
| | LNY | P = 0.17; MWD = -0.20, 95% CI = -2.15 to 1.74 | No significant difference |

UP.322

Percutaneous Nephrostomy vs. Indwelling Ureteral Stenting: Which Technique Is More Efficient in the Resolution of Obstructive Acute Kidney Failure and Urosepsis?

Dias J, Costa P, Oliveira V, Xambre L, Rodrigues R, Amorim R, Espiridião P, Costa L, Pereira M, Amaral J, Ferraz L
Centro Hospitalar V.N. Gaia/Espinho, Vila Nova de Gaia, Portugal

Introduction and Objectives: Our objective was to compare the efficacy of Percutaneous nephrostomy (PN) vs. indwelling ureteral stenting (JJ) in the resolution of obstructive acute kidney failure (AKF) and urosepsis (US) in an urgent setting.

Materials and Methods: We performed a retrospective analysis of the patients referred to our emergency room and submitted to urinary decompression with PN or JJ, between 01/2009–12/2011. Possible differences in the baseline variables between the two groups (PN vs. JJ) were evaluated for each indication (US and AKF). Subsequently, odds ratios (ORs) explored associations between the type of urinary drainage and the efficacy in the resolution of US (suboptimal response: fever >12h or leucocytosis >2 days) and AKF (suboptimal response: Creatinine reduction ratio [CRR] (= [SCr max before intervention or first 48h after – SCr min 48–96h after] / SCr max before intervention or first 48h after x100) < 35%).

Results: In the patients submitted to urgent decompression for US (n=78) data from univariate analysis show in Table 1. Data from multivariate analysis showed that urinary decompression with JJ (vs. PN) had a 3-fold higher probability of achieving an optimal response in obstructive US management (OR 3.37, CI 95% 1.03–11.0, p=0.04). Regarding the patients with AKF (n=92) between groups comparison shows in Table 2. Data from the multivariate analysis showed that urinary decompression with JJ (vs. PN) had a 4-fold higher probability of achieving a CRR>35% in

obstructive AKF management (OR 4.03, CI 95% 1.05–15.4, p=0.04).

Conclusion: Emergent urinary decompression with JJ was more effective in the resolution of obstructive AKF and US.

UP.323

Comparative Analysis of BCG Maintenance in High Risk Non-Muscle Invasive Bladder Cancer: Monthly versus SWOG 8507 Trial (6+3) Protocol

Kim T, Kang S, Oh J, Rhew H
Dept. of Urology, Kosin University Hospital, Busan, South Korea

Introduction and Objectives: We do not know the best schedule of BCG maintenance in high risk non-muscle invasive bladder cancer (NMIBC). So, we compared the most frequently applied two schedules - the monthly and SWOG 8507 trial (6+3) BCG maintenance schedule in terms of recurrence and progression.

Materials and Methods: We retrospectively reviewed medical records of the patients who received BCG maintenance therapy (with full dose) after TURBT and BCG induction (6 week) therapy in pathologically proven high risk non-muscle invasive bladder cancers (NMIBC) between March 2008 and March 2014. We compared the two groups by maintenance schedule and recurrence and progression free survival of them.

Results: A total of 166 patients received BCG maintenance therapy due to high risk NMIBC. A hundred and five patients were received monthly BCG maintenance (Group 1) and 61 patients received WOG 8507 trial (6+3) BCG maintenance (Group 2). The median follow-up duration of all patients was 23 months. Among these, 80 and 43 patients received BCG maintenance at least 12 months, in Group 1 and 2, respectively. The patients who discontinued maintenance therapy due to BCG related toxicity are 5 (6.3%) and 3 (7.0%), respectively. The patients with intravesical recurrence of the

bladder cancer were 15 (18.8%), 9 (21.0%), respectively, and the patients with progression of the bladder cancer were 3 (3.8), 2 (4.7%), respectively. Among 24 patients of intravesical recurrence, the patients who recurred within 12 months are 6 (7.5%), 6 (14.0%), respectively (p=0.050). The 2-year recurrence free survival was 85.0, 79.1% and the 2-year progression free survival was 96.3, 95.3%, respectively. There were no statistical differences between two groups in recurrence free survival (p=0.666, Log-rank test) and progression free survival (p=0.774, Log-rank test).

Conclusion: In high risk non muscle invasive bladder cancers, there were no differences of recurrence and progression free survival between monthly and SWOG 8507 trial (6+3) BCG maintenance groups.

UP.325

Transurethral Anatomical Enucleation and Resection of Prostate (TUAERP)

Liu C, Zheng S, Li H, Xu Y, Xu A, Wang Y, Xu P

Southern Medical University, Guangzhou, China

Introduction and Objectives: Transurethral enucleation and resection of prostate (TUERP) has been widely used for the patients with urinary symptoms due to benign prostatic hyperplasia (BPH) since its come out. We are about to further evaluated the feasibility of transurethral anatomical enucleation and resection of prostate (Via Plasmakinetic or Laser).

Materials and Methods: We retrospectively analyzed the records of 460 patients who underwent transurethral anatomical enucleation and resection of prostate between June 2011 and August 2013 at our institution. We assessed the International Prostate Symptom Score, quality of life score, peak flow rate and post-void residual urine volume preoperatively, 1, 3, 6 and 12 months postoperatively, and yearly thereafter. Enucleation and resection time, enucleated tissue weight, catheterization time, hospital stay and long-term complications were recorded.

Results: No patient had intraoperative significant blood loss or signs of the transurethral resection syndrome. Mean enucleation time was 22.5 minutes (range from 10 to 52), mean resection time was 23.6 minutes (range 5 to 45) and mean resected tissue weight was 43.8±18.7 gm (range from 23 to 188). The catheter was removed on average time of 1.1 days whereas the mean hospital stay was 4.3 days. All patients were followed-up for more than 6 months without recurrence. Transurethral anatomical enucleation and resection of prostate induced significant, pronounced, immediate and lasting improvement in the International Prostate Symptom Score, quality of life, maximum urinary flow and post-void residual urine volume. Postoperative complications included incontinence in 3 cases, urethral stricture in 17

UP.322, Table 1.

| | JJ (n=43) | PN (n=35) | P |
|-----------------------|-----------|-----------|--------|
| Age | 56±19 | 69±16 | 0.002 |
| Chronic renal failure | 2.4% | 22.2% | 0.010 |
| Lithiasic aetiology | 77.3% | 30.6% | <0.001 |
| Suboptimal response | 36.4% | 58.3% | 0.049 |

UP.322, Table 2.

| | JJ (n=54) | PN (n=38) | P |
|---------------------|-----------|-----------|--------|
| Age | 65±16 | 70±12 | 0.06 |
| Lithiasic aetiology | 72.2% | 21.1% | <0.001 |
| CRR >35% | 57.4% | 39.5% | 0.09 |

cases and bladder neck contracture in 8 cases.

Conclusions: Transurethral anatomical enucleation and resection of prostate (TUAERP) appears to be further improvement to TUERP and TURP for lower urinary tract symptoms patients due to benign prostatic hyperplasia.

UP.326

Prospective Evaluation of ICIQ-UI Questionnaire in Patients Undergoing Robot-Assisted Laparoscopic Prostatectomy
Dimopoulos P, Kusuma M, Capper S, Lau M, Clarke N, Ramani V
The Christie NHS, Manchester, UK

Introduction and Objectives: There is little prospective data reporting patient related outcome measures in patients undergoing RALP (Robot-Assisted Laparoscopic Prostatectomy). We have prospectively collected such data since the start of our robotic program in 2008. We use the ICIQ-UI (International Consultation on Incontinence Modular Questionnaire) short form to provide an unbiased assessment of the patient's urinary incontinence and its impact on QoL (Quality of Life) and CSQ (Client Satisfaction Questionnaire) score for patient satisfaction.

Materials and Methods: ICIQ-UI and CSQ questionnaires were sent anonymously to all patients undergoing RALP between April 2008 and December 2013. Prospective data collection carried out preoperatively and at 3, 6, 12 months postoperatively. Patients were stratified into 3 groups with ICIQ-UI ≤ 5 , ICIQ-UI 6-10 and ICIQ-UI > 11 . We also report median CSQ score.

Results: A total of 196 patients were analyzed (214 were excluded due < 12 months follow-up). At three, six and twelve months 46%, 70% and 78% had an ICIQ-UI ≤ 5 ; 41%, 28% and 18% had an ICIQ-UI 6-11; 13%, 2% and 4% had an ICIQ-UI > 11 . At 6 and 12 months 40% and 47% patients reported that they never leak. 90% of the respondents rated the interference in their QoL as less than three out of ten both at six and twelve months. Median CSQ score drops to 31 at 3 months and rises back to 32 at 6 and 12 months.

Conclusions: There appears to be significant improvement in continence up to 12 months. At that point 2% and 4% of patients report an ICIQ-UI score > 11 at 6 and 12 months. Patients should be counseled appropriately regarding this. The most common cause for slight leakage in this group was physical activity and exercising. Patients are satisfied according to CSQ score. Widespread use of these questionnaires would allow objective evaluation of continence and satisfaction data from various different Centers and for comparison with other treatment modalities.

UP.328

Robotic Adrenal Surgery for Some Subpopulations Unfit for Conventional Laparoscopic

Shen Z, Zhang X

Ruijin Hospital, Shanghai Jiaotong University, Shanghai, China

Introduction and Objectives: To present our initial experience performing robotic adrenal surgery for some subpopulations of patients unfit for conventional laparoscopic.

Materials and Methods: A total of 25 adrenal tumor patients unfit for conventional laparoscopic were operated on using robotic technology in our department between November 2011 and October 2013. The demographics, surgical, pathological findings and follow-up results were evaluated.

Results: Mean age was 52.4 (34-67) years, and BMI 26.4 (16.5-38.8). Of the 25 cases, 19 underwent robotic-assisted laparoscopic adrenalectomy (RALA). Six patients underwent robotic-assisted laparoscopic partial adrenalectomy (RALPA). No patient was converted to conventional surgery in both RALA and RALPA. In RALA, 2 functional cortical adenomas, 4 non-functional adenomas, 3 myelolipoma, 1 metastatic adrenal tumor, 7 pheochromocytoma and 2 adrenal cysts were excised. Mean tumor size was 6.33 (2.5-12) cm. Mean surgical time was 87.21 (36-128) min, bleeding 125 (50-200) ml, hospital stay 5.8 (4-12) days. Only one patient had postoperative complication (Clavien II). In RALPA, 6 tumors, of which 3 was pheochromocytoma and 3 were adrenal-cortical adenoma, were removed. Mean tumor size was 4.25 (2.5-5.5) cm. Mean surgical time was 67.25 (39-85) min, bleeding 150 (50-400) ml, and hospital stay 5.25 (4-8) days. No complication was found.

Conclusion: Robotics could overcome some limitations of conventional laparoscopy, which allow some subpopulation of patients unfit for conventional laparoscopic to be treated, such as patients affected by larger tumours, patients who need adrenal-sparing surgery, and obese patients.

UP.329

Robotic Assisted Laparoscopic Pyeloplasty in Infants and Toddlers: MPUH Experience

Murali V, Sheladia C, Mishra S, Ganpule A, Sabnis R, Desai M

Muljibhai Patel Urologic Hospital, Nadiad, India

Introduction and Objectives: Robotic pyeloplasty (RP) is widely used for surgical corrections of congenital pelviureteric junction obstruction. We intend to analyze the feasibility, safety and efficacy of robotic pyeloplasty in infants and toddlers.

Materials and Methods: Twelve children under 5 yrs of age who underwent robotic assisted laparoscopic pyeloplasty, were analyzed retrospectively with respect to demographics, operative,

postoperative, and follow-up data. For all cases a lateral transperitoneal approach was used and all anastomosis were stented ante grade. Standard three ports approached with smaller ports (one 8 mm camera port and two 5 mm working ports) used. All patients underwent Anderson-Hynes pyeloplasty and all anastomoses were stented antegradely by double J stent. 6-0 absorbable monofilament suture material used for anastomosis. 12 Fr Nelaton was kept as drain in peripelvic space. Success was defined as the resolution of preoperative symptoms and hydronephrosis postoperatively. In case, either is not fulfilled a renogram was obtained postoperatively.

Results: The mean patient age was 3.1 years (1-5 years). The mean operative and console times were 142 (106-180) and 92 (76-118) minutes, respectively. Mean analgesic requirement was 68 ± 12 mg of Tramadol. The drain was removed after a mean of 36 hrs (24-48). The mean hospital stay was 2.8 days (1.6-3.9). Two patients had fever (Clavien grade-1) which was treated conservatively. Mean follow-up was 16 months (12-24 months). Symptoms resolution was seen in all patients. Renal hydronephrosis improved either completely or partially. In cases of incomplete resolution of hydronephrosis, a 99m Tc-MAG-3 diuretic renogram showed preservation of renal function without obstruction.

Conclusions: Robotic assisted laparoscopic pyeloplasty is safe and feasible in infant and toddler.

UP.330

Intraoperative Antegrade Stenting in Laparoscopic Pyeloplasty

Curry D, Yassin M, Thwaini A, Bailie J, Hagan C, Rajan N

Belfast City Hospital, Belfast, Northern Ireland

Introduction and Objectives: To discuss different techniques involved in antegrade JJ stenting during laparoscopic pyeloplasty, highlighting the advantages and challenges with each method.

Materials and Methods: Seventy five patients who underwent laparoscopic pyeloplasty, performed by three surgeons between April 2004 and March 2013 were reviewed. Data was collated from the Hospital Electronic Records and analysed by audit staff and two urology trainees. The majority underwent intra-operative antegrade stenting during the procedure. Three different techniques were performed by the three surgeons and will be described.

Results: Nine patients had retrograde stent insertion prior to their pyeloplasty for pain and/or infection, and two had incomplete information; hence 11 were excluded from the study. Antegrade JJ stent insertion with endoscopic confirmation (EC) via post-operative flexible cystoscopy was performed in 28 patients, and without confirmation in 30 (WoC). In a third

group, antegrade stenting was also confirmed by artificial filling (AF) of the urinary bladder at the time of stent deployment over a guidewire. Intravesical position of the stent was then confirmed by observing reflux of saline through and around the JJ stent intra-operatively. This technique was performed in 6 patients. Four patients had to have their stents repositioned. In two EC patients, endoscopy confirmed that the distal stent end was not positioned intravesically. In both instances, repositioning was performed with the aid of an intra-operative semi-rigid ureterscope. One AF patient had a suspected failure of lower stent positioning in the bladder due to failure of saline reflux. This was then confirmed endoscopically after finishing the pyeloplasty and the stent was repositioned as above. One WoC patient was readmitted via A&E with pain. X-ray KUB confirmed intra-ureteric stent position. The patient was then taken back to theatre for stent repositioning.

Conclusion: Correct position of antegrade inserted JJ ureteric stent should be confirmed intra-operatively, in order to avoid unnecessary post-operative complications from stent malposition. Artificial bladder filling method seems to be a safe and reliable procedure, reducing requirements for additional instrumentation. Further study is, however, required to corroborate our encouraging findings.

UP331

Pneumovesicoscopic Bladder Diverticulectomy: Improved Surgical Technique

Nechifor V^{1,2}, Lurquin A¹, Wilmart J¹

¹Dept. of Urology, Centre Hospitalier de Luxembourg, Luxembourg; ²University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania

Introduction and Objectives: Pneumovesicoscopic bladder diverticulectomy is a safe, acknowledged procedure recommended for large bladder diverticula that affect patients' quality of life. It has been described in pediatric as well as adult patients, representing an appealing alternative to open, more invasive surgery. We made a review of the literature concerning this surgical technique and we also described our personal experience which highlights a more particular approach of this intervention.

Materials and Methods: Firstly, our study consists of a literature review using PubMed of publications regarding pneumovesicoscopic bladder diverticulectomy going back to the year 2000, irrespective of the technique used (multiple-port or single-port). Secondly, we present our recent experience consisting in 2 patients, aged 63 and 68 years old, with LUTS and repeated lower urinary tract infections in whom we removed 5 giant diverticula (3 for one patient and 2 for the other). We began the intervention by performing a transurethral resection

of the prostate. Then by a pneumovesicoscopic approach bladder diverticulectomy was completed, using 3 trocars with advanced fixation sleeve that prevented intra and postoperative complications (gas leaks in the perivesical space or subcutaneous tissues).

Results: The technique showed its advantages in the bibliographic review and our preliminary results were also extremely encouraging. All the diverticula were removed using the pneumovesicoscopic approach, with few comorbidities (insignificant blood loss, patients regaining autonomy first day postoperatively) and with a short hospital stay (4 days). The diverticulectomy was performed intravesically, along the diverticula borders, pulling the diverticular wall inside the bladder. This made the dissection of the perivesical tissue unnecessary. The defects that remained in the bladder wall were closed using a single layer suture.

Conclusion: Pneumovesicoscopic bladder diverticulectomy with use of advanced fixation sleeve trocars and the technique of intravesical dissection after incision of the diverticulum's neck mucosa presents advantages that, in our opinion, promote it as the gold standard surgical approach of this pathology.

UP333

A New Technique of Percutaneous Endoscopic Recanalization of the Ureteropelvic Junction

Lezrek M, Tazi H, Fethi A, Slimani A

Dept. of Urology, Military Hospital Moulay Ismail, Meknes, Morocco

Introduction and Objectives: We study the feasibility of a new percutaneous endoscopic technique for the recanalization of complete obstruction of the Ureteropelvic junction (UPJ).

Materials and Methods: Two patients (36 years-old male and 62 years-old female) with a history of open pyelolithotomy 3 months ago in another institution, presented with flank pain. Ultrasound and CT-scan showed a large hydronephrosis and UPJO. Retrograde ureteropyelography showed a complete obstruction of the UPJ. Contrast media cannot pass in the pelvis. Under general anesthesia, the patients are placed in the split-leg modified lateral position. An attempt to force the obstruction with a stiff guidewire is not successful. A percutaneous blind puncture is performed with a 21-Gauge needle, and contrast media is injected. A calyceal puncture is performed with an 18-Gauge needle. After dilation, a 24F Amplatz sheath is placed. The inspection of the pelvic wall doesn't find the UPJ or its scar. A ureteral catheter is placed in the ureter and contrast media is injected. Under fluoroscopy, the Amplatz sheath is placed in front of the tip of the ureter and the ureteral catheter. The 18-Gauge needle is introduced in the Amplatz sheath, and the ureteral

tip is punctured through the renal pelvis wall. A hydrophilic guidewire is advanced down the ureter. The nephroscope is introduced and the tract is dilated to 12 Fr and a safety guidewire is inserted. The pelvic wall, the tract and then the ureteral wall is incised with an electrode with the guidance of the guidewires. A 3.5 needle-holder is inserted in the nephroscope and using a 13 mm needle suture, a suture is placed between the pelvic and the ureteral wall. Then, 1 or 2 JJ stents are placed.

Results: This percutaneous endoscopic recanalization technique was used in 2 patients. The mean operative time was 154 minutes, and the mean postoperative hospital stay was 2 days. In 1 patient, at 3-months follow-up, retrograde pyelography showed a medium passage of contrast media through the UPJ, and a new JJ stent is placed. The other patient had just 2-months follow-up.

Conclusions: This technique of percutaneous endoscopic recanalization of the UPJ is feasible and allows at least a placement of changeable JJ stent.

UP334

Early Experience with Laparoscopic Urologic Surgery

Bouassida M, Hadj Slimen M, Touaiti T, Fourati M, Mseddi M, Smaoui W, Chaaben W, Bouhlef A, Rbai N, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: Laparoscopic surgery has become the preferred standard in developed countries. New procedures in laparoscopic surgery are continually being developed. Despite this innovation, Tunisia and many other African countries are yet to fully embrace this surgical approach. In this item we describe our early experience which has been started recently in January 2012.

Materials and Methods: It's for a prospective study to examine the first 40 cases of laparoscopic surgery performed in our department during the period of 2 years between January 2012 and December 2013.

Results: We realized an average of 1.6 interventions per month. We used transperitoneal approach in all cases. Our cases were divided into: promontofixation for uro genital prolapse (15 cases), nephrectomy for destroyed kidneys (10 cases), radical nephrectomy (4 cases), renal cyst (3 cases) retrocaval ureter (1 case), sur-renalectomy (2 cases), radical prostatectomy (1 case), diagnostic laparoscopic bladder injury (1 case), lymphocele (1 case), stones of the lumbar ureter (1 case), bilateral varicocele (1 case). Interventions went smoothly without per operative incidents. Conversion was necessary in 2 cases (stones of the lumbar ureter with intense urethritis, pyelonephritis). The postoperative course was uneventful in all cases and marked by an early lifting and a rapid restoration of

transit. The surgical results were satisfactory after a mean of 1 year.

Conclusion: Laparoscopy in urology continues to grow with the onset of new materials. In Tunisia, we try to adapt our particular circumstances hoping that this pathway could be reproduced by young residents.

UP335

Holmium Laser Cystolithotripsy in Children: Single Center Experience

Aboul Ela W, El Sheemy M, Shoman A, Shokry A, Morsi H, Badawy H
Aboul Reich Hospital, Cairo University, Egypt

Introduction and Objectives: Management of vesical calculi in children poses an interesting challenge to the urologist. The treatment options currently available include open surgery, transurethral pneumatic cystolithotripsy, percutaneous suprapubic cystolithotomy and shockwave lithotripsy (SWL). Holmium: YAG (Ho: YAG) laser cystolithotripsy represents a novel modality of treatment that is minimally invasive.

Materials and Methods: From January 2010 to May 2011, we treated 33 children with vesical calculi using transurethral Ho: YAG laserlithotripsy. The mean stone size was 2.02 cm (range 1-4). The mean patient age was 3.75 (range 6 months-11) years. Access was obtained with a cystoscope with sheath 11 F and holmium laser energy (2.75 J/pulse at 11 Hz and power at 30 watt) was applied through a 0.73-mm end-firing fibre under video guidance. The calculi were fragmented to tiny fragments about 2-3 mm in size. An 8F silicone urinary catheter was placed for 3 days in all patients. Post-operatively the children were evaluated at 3 and 12 months with radiological imaging and uroflowmetry to confirm stone-free status and exclude urethral stricture formation.

Results: The mean duration of the endoscopic procedure was 32 (range 20-50) minutes while the length of hospital stay was 24 hours for all patients. All the children were rendered stone-free following a single operative session. Laser-induced major complications were not observed in any of the children. At the mean follow-up of 16 (range 12-24) months none of the children developed stone recurrence, urinary tract infections or urethral strictures.

Conclusions: Transurethral Ho: YAG laser lithotripsy was found to be an efficient and safe modality for the treatment of vesical calculi in children.

UP336

Using Percutaneous Posterior Tibial Nerve Stimulation (PTNS) for the Treatment of Isolated Nocturnal Enuresis in Children

Aboul Ela W, Shokry A, Shoman A, El Sheemy M, Morsi H, Badawy H
Aboul Reich Hospital, Cairo University, Egypt

Introduction and Objectives: To determine

the efficacy of percutaneous posterior tibial nerve stimulation (PTNS) for the treatment of the nocturnal enuresis in children.

Materials and Methods: From January 2010 to May 2012, 20 children who are complaining from nocturnal enuresis with no other irritative symptoms underwent percutaneous electrical nerve stimulation. All patients were evaluated by ascending cystogram (ACU) and urodynamic study preoperatively. All patients had no reflux on ACU. The device for percutaneous nerve stimulation consist of an interface cable, a surface electrode, a percutaneous needle and a portable stimulator. The nerve is reached by insertion of a fine needle approximately 3 fingers breadth cephalic to the medial malleolus, posterior to the tibia. The surface electrode placed under the heel of the same foot by a sticky pad is connected to low voltage stimulator with adjustable pulse. The amplitude is slowly increased until the large toe start to flex or the toes fan, range from 1 to 20 Hz, 12 sessions, each session last for 30 minute, once weekly for 12 weeks then the children were evaluated as regard their symptoms and urodynamic parameters.

Results: Total of 12 patients (60%) out of 20 patients showed improvement as regard their symptoms and improvement in all parameters of urodynamic study with increase in bladder capacity and disappearance of detrusor instabilities, while 8 patients (40%) out of 20 did not show improvement as regard their symptoms despite improvement in urodynamic parameters (4 patients) and others did not show improvement in both symptoms and urodynamic parameters (4 patients).

Conclusions: Posterior tibial nerve stimulation (PTNS) is an effective, minimally invasive option for the treatment of patients complaining of overactive bladder with an easily accessible stimulation site.

UP337

Can Holmium Laser Replace Cold Knife in Treatment of Stricture Urethra?

Aboul Ela W¹, Abdl Mohsen M², Morsi H¹, Shokry A¹, El Sheemy M¹, Shoman A¹, Badawy H¹

¹Aboul Reich Hospital, Cairo University, Egypt;

²Kasr Al Ainy, Cairo University, Egypt

Introduction and Objectives: To assess the effectiveness of visual laser ablation treatment with holmium:yttrium-aluminum-garnet (Ho:YAG) laser in male patients with urethral strictures and to compare the results with those obtained in patients treated with visual internal urethrotomy (VIU) urethrotomy.

Materials and Methods: From January 2010 to January 2013, 32 male patients aged 2 to 70 years (mean age 10.2) with primary urethral strictures 0.5 to 1.5 cm long qualified for the study. There were 19 cases with the stricture

length less than 1 cm and in 13 cases the length was more than 1.0 cm. There were also 17 cases with the stricture in anterior urethra and 15 cases with the stricture in posterior urethra. The patients were treated using visual laser ablation of urethral strictures (VLASU) with holmium:YAG laser. All the patients were investigated preoperatively by uroflowmetry and ascending cystourethrogram with micturating urethrogram and were followed up post-operatively with uroflowmetry and ascending cystourethrogram at 3 months and 6 months. Urethrotomy was made at the 12 o'clock position by retrograde vaporization of the scarred tissue through the total length of the stricture with the aid of a metal guidewire.

Results: At 6-month follow-up, 21 cases (65.6%) did not require repetition of the procedure. The mean operation time was 30.8 minutes (range 20-45 minutes). The mean peak urinary flow rate (Qmax) was 6.41±1.78 l/s. The mean Qmax postoperative at 3 months was 17.26±5.9 and at 6 months postoperative was 15.7±7.21.

Conclusion: VLASU can be used as a method of treatment of this disorder. It is an effective, modern, low-invasive, and repeatable technique and is technically simple and easy to master with results comparable to those of conventional urethrotomy.

UP338

Urogenital TB in Children and Adolescents in Epidemic Region

Kulchavenya E¹, Mukambaev K²

¹Novosibirsk Research TB Institute, Medical University, Novosibirsk, Russia; ²National Center of Phthisiatry, Bishkek, Kyrgyzstan

Introduction and Objectives: The level of the child's incidence with tuberculosis (TB) is a mirror of severity epidemic situation.

Materials and Methods: Historical cases of children and teenagers were analyzed among 131 patients with Urogenital tuberculosis (UGTB) in Siberia and 819 UGTB patients in Kyrgyzstan.

Results: In Siberia, 2 children and 1 teenager with UGTB were revealed (2.3% among all UGTB), all had TB of parenchyma. All children were asymptomatic. A 17-year old girl had a long history of recurrent urinary tract infection; as antibacterial therapy was ineffective UGTB was suspected and her urine was cultured. All children and teenagers had a growth of M. tuberculosis (MBT) in urine; MBT was sensitive to all anti-TB drugs. All had isolated kidney TB. In Kyrgyzstan 38 children and teenagers with UGTB were diagnosed (4.6% among all UGTB patients); 17 patients were children and 21 were teenagers. All had a long history, underwent surgical interventions, 6 had fistula, two teenagers had microcystis. In children wide-spread complicated TB was

diagnosed in 11 cases (64.7%). One boy had also genital TB. Thus, 64.5% patients were revealed in late complicated stage. Only one patient had isolated kidney TB, in others lymphonodal, skeletal, pulmonary TB was diagnosed. MBT in urine was found in 11 children, in 3 – alongside with growth in sputum. In 21 teenagers complicated UGTB was diagnosed in 11 cases (52.4%). MBT was found in 9 and in the rest diagnosis was confirmed by histology. Generalized TB was found in 17 patients. Surgery was performed in 11 children (64.7%) and 16 teenagers (76.2%).

Conclusion: Late diagnostic of UGTB predominated in Kyrgyzstan, nevertheless in Siberia all children and teenager were revealed in time and cured without surgery. Medical service should be improved in the regions with severe TB epidemic.

UP339

Posterior Urethral Valve Fulguration: Effect on Renal Prognostic Variables

Nawaz G, Rehman A, Khan I, Hussain I, Akhter S

Shifa International Hospital, Islamabad, Pakistan

Introduction and Objectives: Posterior urethral valve (PUV) is a life-threatening congenital anomaly of the urinary tract occurring in 1 in 8000 to 25000 live births. Factors associated with early renal impairment include late diagnosis and treatment, presence of ureteric reflux, presence of proteinuria and renal impairment at diagnosis. Early diagnosis and fulguration may slow the renal impairment. Our objective was to determine the effect of posterior urethral valve fulguration on renal prognostic variables including VUR, proteinuria and serum creatinine.

Materials and Methods: We retrospectively reviewed records of 88 consecutive children with PUV managed over 3 years. Diagnosis was made by clinical feature, USG and confirmed by voiding cystourethrogram (VCUG). All children were treated by endoscopic fulguration of posterior urethral valves (PUV) using cold knife as urethral valvotome. Serum creatinine, proteinuria and VUR at presentation and after 1 year of PUV fulguration were recorded. Patients with ESRD were excluded from the study.

Results: Mean age at presentation was 4.8 ± 3 years. Patients were regularly followed for 12 months. Hydronephrosis at presentation was seen in 69 (78%) patients that decreased in 73%, disappeared in 15% and remained same grade in 12% of patients. Vesicoureteric reflux on VCUG was seen in 50 (57%) out of 88 patients and in 30 (34%) patients there was bilateral reflux. VUR decreased in grade in 22 refluxing ureters while 18 units (ureters) required sting procedure for persistent reflux. Proteinuria was observed in 36 (41%) patients while after 1 year of valve fulguration

proteinuria was seen in 15 (17%) patients only. These were the patients who had significant renal insufficiency at presentation. Mean serum creatinine at presentation was $1.4\text{mg/dl} \pm 0.6$, which decreased to $1.1\text{mg/dl} \pm 0.4$.

Conclusions: Posterior urethral valve fulguration improves symptoms, reduces VUR, proteinuria and serum creatinine that may predict slow progression of renal insufficiency in these patients.

UP340

Comparison of Efficacy of Endoscopic Treatment for Primary versus Secondary Vesico-Ureteric Reflux in Children

Nawaz G, Muhammad S, Jamil I, Hussain I, Akhter S

Shifa International Hospital, Islamabad, Pakistan

Introduction and Objectives: Posterior urethral valve (PUV) is a life-threatening congenital anomaly of the urinary tract occurring in 1 in 8000 to 25000 live births. Significant numbers of patients have associated VUR that can lead to dysphasia and renal insufficiency. Reflux usually improves and often resolves after valve ablation. Our objective was to compare the efficacy of endoscopic treatment for primary vesico-ureteric reflux with persistent vesico-ureteric reflux due to posterior urethral valve.

Materials and Methods: A total of 80 refluxing ureteric units, treated by endoscopic injection in the last 3 years were included in the study. Patients with primary VUR were assigned Group A (n=60 units) while patients with persistent VUR after fulguration PUV were assigned Group B (n=20 units). Diagnosis was confirmed and grade of reflux was assessed by voiding cystourethrogram (VCUG). All patients underwent endoscopic treatment by the same surgeons. Dextranomer hyaluronic acid co-polymer (DEX-ELL) was used as bulking agent in all patients. PUV fulguration was also done by the same surgeon and residual valve checked by re-look cystoscopy in all children at 3 months. Three months post injection VCUG was repeated to assess the efficacy which was defined as having no or grade I reflux for single ureter.

Results: Out of 60 ureteric units of Group A, 21 were bilaterally refluxing while 18 had unilateral reflux. In Group B, 14 patients had unilateral reflux while 3 patients had bilateral reflux. There was no clinical significant difference in the outcome among the two groups. In Group A, 38 (64%) were free of reflux, while 16 (27%) showed down gradation and 6 units showed no response, while among Group B, 11 (55%) units were free of reflux, 6 (30%) showed down gradation and 3 (15%) showed no response to single treatment.

Conclusion: Endoscopic treatment is equally successful for both primary VUR as well as for those secondary to posterior urethral valve.

UP341

Posterior to Anterior Urethral Caliber Ratio of Pediatric Patients with or without Posterior Urethral Valve

Viseshsindh W¹, Hongyok C², Pornkul R², Jaovisidha S², Udomsubpayakul U³

¹*Dept. of Surgery, Ramathibodi Hospital, Bangkok, Thailand;*

²*Dept. of Radiology, Ramathibodi Hospital, Bangkok, Thailand;*

³*Dept. of Epidemiology, Ramathibodi Hospital, Bangkok, Thailand*

Introduction and Objectives: To demonstrate the posterior/anterior urethral caliber ratio that appears in voiding cystourethrography (VCUG) among male pediatric patients with or without posterior urethral valve (PUV) for supporting diagnostic decision by imaging.

Materials and Methods: The study population consisted of male pediatric patients (≤ 15 years of age) who underwent VCUG from January 1st 2007 to June 30th 2012. Exclusion criteria were patients who had inadequate study, unavailable films, incomplete data in medical or radiological record, and/or were unable to undergo cystoscopy due to certain circumstances. Measuring of the posterior(P)/anterior(A) urethral caliber ratio was done. The urethral caliber ratio was calculated by dividing the maximal posterior urethral diameter by the maximal anterior urethral diameter. For each P/A ratio, sensitivity and specificity were plotted as a function of cutoff criterion, receiver operating characteristic (ROC) curves were constructed, and the areas under the curve (AUC) were calculated.

Results: A total of 432 patients were retrospectively reviewed. The median age was 2.6 years (range 1 day to 14 years). Median in ratio of 18 patients with positive VCUG and cystoscopic findings for PUV was 3.2 (1.72 to 7.41). A total of 413 patients with no symptom suggestion for PUV and negative VCUG findings for PUV demonstrate median in ratio 1.07 (0.48 to 5.56). The AUC that calculated by ROC curve was 0.991. At cut-off ratio 2.0, the sensitivity, specificity and accuracy were 94.7%, 96.9% and 96.8% respectively. At cut-off ratio 2.5, the sensitivity, specificity and accuracy were 73.7%, 99.3% and 98.2% respectively. At cut-off ratio 3.0, the sensitivity, specificity and accuracy were 57.9%, 99.8% and 97.9% respectively.

Conclusions: Posterior urethral valve is a serious cause of congenital bladder outlet obstruction in males and can present in varieties of occurrence and magnitude. Thus, good diagnostic decision is important. The calculation of posterior/anterior urethral caliber ratio provides us with objective measurement for benefit in diagnostic decision by VCUG. Best cut-off for optimum sensitivity and specificity is probably a P/A Ratio of 2.0. Best cut-off for high specificity is probably 2.5 or 3.0.

UP342

Maintenance of Testicular Size in Childhood Varicocele

Khasnavis S, Kogan B
Albany Medical College, Albany, USA

Introduction and Objectives: Fertility is affected in 20% of adults with a varicocele. In teens, testicular atrophy/hypotrophy has been used as a proxy for future fertility issues. We studied the incidence and progression of testicular size discrepancy in a series of children followed non-operatively.

Materials and Methods: We identified 104 consecutive children seen by us for varicocele. Surgery was only undertaken in 3 who were being operated on for other reasons. We retrospectively reviewed those with at least 3 consecutive annual follow-ups. There were 35 boys, ages 9-14 years. Varicocele grade and orchidometric volumes were recorded. We also analyzed patients with >10% difference in testicular size and those with grade 3 varicoceles at initial visit.

Results: The median age was 12 (range 9-14) and mean grade of varicocele was 2.3 ± 0.6 . We found the mean left testicular volume to be 96, 95 and 96% of the right at the 1st, 2nd and 3rd visit respectively. There were no differences in the pre- and post-pubertal boys. Of the 13 (37%) boys with a grade 3 varicocele, the left testicular volume was 95% (SD 11.4) of the right at presentation and was unchanged through visit 3 (96%, $p=0.69$). Eleven (31%) boys had a > 10% size difference at presentation; the left testicle measured 82% of the right (SD 5.3) at diagnosis and increased to 92% (SD 6.3) by the 3rd visit ($p<0.001$). In 23 boys, we reviewed data from a 4th visit and in 12, a 5th visit. In these boys, mean left testicular volume was 99% of the right at diagnosis and 104% and 104% at the 4th and 5th visit ($p=0.13$).

Conclusions: We found no progression in atrophy/hypotrophy of the left testis in a series of consecutive teens followed non-operatively for varicocele. Our data supports observation as management for childhood varicocele as most cases fail to show progressive loss of volume.

UP343

Comparison of Efficacy of Desmopressin Fast-Melting Formulation and Enuretic Alarm-Only in the Treatment of Nocturnal Enuresis

Tuncel A¹, Balci M¹, Oguz U², Aslan Y¹, Bilgin O¹, Atan A¹

¹Ankara Numune Training and Research Hospital, Ankara, Turkey; ²Kecioren Training and Research Hospital, Ankara, Turkey

Introduction and Objectives: The aim of the present study was to compare the efficacy of desmopressin fast-melting formulation and enuretic alarm-only in the treatment of monosymptomatic nocturnal enuresis (MNE).

Materials and Methods: A total of 104 patients (59 boys and 45 girls) who had significant primary MNE were included in the study. The patients were randomized into 2 groups. Group 1 (n=49) received Desmopressin fast-melting formulation (Minirin Melt[®], Ferring) 120 µg/d p.o and Group 2 (n=55) received enuretic alarm therapy (Enurin[®], Aymed Medical Inc.). The groups received their treatment during 3 months. The children were classified as *non-responders* if there was no or less than 50% decrease in wet nights compared to baseline; *partial responders* if there was 50% or more, but less than 90% decrease in wet nights compared to baseline; *responders* if there was a 90% or more decrease in wet nights compared to baseline. All the patients were evaluated at first and 3rd months.

Results: No significant difference in terms of age between the groups (11 vs. 10 yr, $p>0.05$). At the end of the first month, response rates were 54.5% (34/55) and 38.8% (19/49) in group 1 and 2 also, partial response rates were 25.5% (14/55) and 34.7% (17/49) in group 1 and 2 ($p=0.274$). No response rate were 20% (11/55) and 26.5 (13/49) in group 1 and 2. At the end of the third month, response rates were 56.4% (31/55) and 67.3% (33/49) in group 1 and 2 also, partial response rates were 20% (11/55) and 4.1% (2/49) in group 1 and 2, respectively ($p=0.05$). No response rate were 23.6% (13/55) and 28.6 (14/49) in group 1 and 2. Response rate significantly increased at 3rd month in Group 2, whereas we did not find significant alteration in terms of response rate in Group 1.

Conclusion: At the end of the third month, response rate seems to be higher in enuretic alarm therapy group than desmopressin fast-melting formulation therapy group. At the end of the first month, proceeding the desmopressin fast-melting formulation therapy did not lead more contribution to the success rates in non-responders.

UP344

Risk Factors for Relapse in Children with Monosymptomatic Nocturnal Enuresis

Oguz U¹, Demirelli E¹, Ozyuvali E², Senocak C², Ogreden E¹, Yalcin O¹

¹Dept. of Urology, University of Giresun, School of Medicine, Giresun, Turkey; ²Dept. of Urology, Kecioren Training and Research Hospital, Ankara, Turkey

Introduction and Objectives: Monosymptomatic nocturnal enuresis (MNE) is one of the most frequent conditions in children. There is a high rate of success in the treatment of MNE. But on the other hand the relapse rate was defined 5-30% and 50-90% after alarm and desmopressin treatment, respectively. With this study we aimed to evaluate risk factors for relapse after the treatment of children with

MNE.

Materials and Methods: We retrospectively reviewed the medical records of 51 children with MNE, who had long-term follow-up results (>6 months) before September 2013. They were treated by Desmopressin or alarm device. Patients with failed treatment were excluded. Forty-three patients with response ($\geq 90\%$ reduction in wet-night) or partial response ($\geq 50\%$ and $< 90\%$ reduction in wet-night) were included to this study. Of 43 patients, 30 children were treated by Desmopressin and 13 children used alarm treatment. Patients were divided into two groups according to relapse rates. Group I (n:30): without relapse, Group II (n:13): with relapse. We aimed to determine whether or not relapse is associated with age, gender, family history and the number of wet-night.

Results: In Group II, eleven children were treated with desmopressine while two children were treated with alarm device. Mean age was 11.7 (6-16) years and 12.2 (6-16) years in Group I and II, respectively ($p>0.05$). Male/female ratio was 1.5; 1.1, respectively ($p>0.05$). Family history in first-and second-degree relatives was not statistically significant in the two groups ($p>0.05$). The number of wet-night/month was also not significant in the groups ($p>0.05$).

Conclusions: With this study we determined that age, gender, family history and the number of wet-nights are not risk factors for relapse after the treatment of MNE.

UP345

Is Age Associated with Success of the Treatment in Children with Monosymptomatic Nocturnal Enuresis?

Oguz U¹, Demirelli E¹, Yordam M², Ogreden E¹, Yalcin O¹

¹Dept. of Urology, University of Giresun, School of Medicine, Giresun, Turkey; ²Dept. of Urology, Kecioren Training and Research Hospital, Ankara, Turkey

Introduction and Objectives: Monosymptomatic nocturnal enuresis (MNE) is observed in 15% of children at five years of age and the prevalence of MNE decreases with increasing age. But it is unclear if the age is associated with the success of the treatment in children with MNE. With this study, we aimed to evaluate whether age is associated with the success of the treatment in children with MNE.

Materials and Methods: We retrospectively reviewed the medical records of children with MNE until September 2013, and 51 children treated by Desmopressin or alarm device were included to this study. Of 51 patients, 35 children were treated by Desmopressin and 16 children used alarm treatment. Only patients with long-term follow-up results (>6 months) were included. We created 3 groups according

to response rates. Full response and $\geq 90\%$ reduction in wet-night was considered as success (Group I); achieving $\geq 50\%$ and $< 90\%$ reduction in wet-night was considered as partial success (Group II); $< 50\%$ reduction in wet-night was considered as failure (Group III). We evaluated the difference of age in three groups. **Results:** Mean age was 11.3 years (6-16 years). Male/female ratio was 28/23. Forty-three (84.3%) children had family history of MNE in first- and second-degree relatives. We achieved full response and $\geq 90\%$ reduction in wet-nights in 32 (62.7%) patients (Group I); $\geq 50\%$ and $< 90\%$ reduction in 11 (21.6%) patients (Group II) and $< 50\%$ reduction in 8 (15.7%) patients (Group III). Mean ages of the groups were 12.5 years (6-16 years), 10 (6-16 years), 8.6 (6-16 years) in Groups I, II and III, respectively ($p=0.015$).

Conclusions: In the present study we determined that response to treatment in children with MNE increases with the increasing age.

UP.346

Lower Urinary Tract Dysfunction (LUTD) in Children with Dysfunctional Voiding Symptom Score (VDSS) Lower Than 8.5

Kibar Y, Irkılata H, Köprü B, Alp B, Dayanç M
Gulhane Military Medical Academy, Ankara, Turkey

Introduction and Objectives: Lower urinary tract dysfunction (LUTD) can lead to several significant problems such as incontinence, recurrent urinary tract infection, vesicoureteral reflux and kidney damage in neurologically normal children. Dysfunctional voiding symptom score (DVSS) is frequently used with other noninvasive diagnostic methods [i.e. 3-day voiding diary and uroflowmetry with electromyography (UF-EMG)] for the diagnosis and follow-up of children with LUTD. We aimed to evaluate UF-EMG patterns of children whose DVSS was lower than 8.5.

Materials and Methods: UF-EMG, VDSS and 3-day voiding diaries of 302 patients, who were treated and followed-up between 2009 and 2013, were analyzed. The DVSS score of 89 patients (29%) were detected to be below 8.5, changing from 0 to 8.

Results: Among patients with DVSS lower than 8.5, isolated dysfunctional voiding (DV) was detected in 18 patients, over active bladder (OAB) in 31, DV and OAB in 8, isolated urgency in 15, extraordinary daytime urinary frequency in 14 and primary bladder neck dysfunction in 3. In the analysis of the UF-EMG patterns of the patients, the patterns of 32 patients were found to be normal, 27 were stakkato, 15 were intermittent, 9 were plato and 6 were tower. Among 26 patients with DV, severe voiding phase dysfunction (grade 3-4) was detected in 13 patients.

Conclusion: DVSS is a useful diagnostic method for the first evaluation and the follow-up of patients with LUTD. However, a DVSS lower than the cut-off value of 8.5 may not exclude the presence of LUTD. Therefore, the evaluation of LUTD presence should comprise the results of all diagnostic methods such as DVSS, voiding diary and UF-EMG.

UP.347

Complications after Common Sheath Reimplantation in Pediatric Patients with Complicated Duplex System

Lee Y, Son H, Shin S, Bascuna R, Ha J, Lee H, Im Y, Han S

Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objectives: When the upper tract approach is contraindicated in patients with ectopic ureter or ureterocele combined with ureteral duplication (EU), a bladder level approach (BLA), involving either common sheath reimplantation (CSR) or total reconstruction (TR), is the remaining option. However, concerns exist about the high morbidity of BLAs. We report our experience of CSR for EU, including the success rate and rate of complications, such as voiding problems.

Materials and Methods: We retrospectively examined the results of 39 patients who underwent CSR between January 2001 and December 2012. Risk factors for the development of postoperative voiding problem and decreases in differential renal function (DRF) were analyzed.

Results: The median age at operation was 16.5 months. After CSR, upper urinary tract dilatation decreased in 36 patients (92.3%). During a median follow-up of 70.5 months, an additional operation was required in six patients (15.4%). Voiding problems developed in seven of 38 patients (18.4). Low preoperative DRF ($\leq 40\%$) was the only risk factor for the development of postoperative voiding problem on multivariate analysis ($p = 0.005$). DRF decreased postoperatively in five of 36 patients (13.9%) and also associated with low preoperative DRF. No patient developed hypertension or proteinuria.

Conclusions: CSR decompressed the upper urinary tract effectively in our EU patients. Low preoperative DRF was the only risk factor for the development of postoperative voiding problems. When the upper tract approach is contraindicated, CSR is a reasonable alternative. TR is unnecessary, as the remnant upper pole kidney after CSR does not lead to complications.

UP.348

Pediatric Laparoscopy-Assisted Extracorporeal Pyeloplasty: A Comparative Single Institution Experience

Song S¹, Lee D¹, Sohn M¹, Hong B¹, Jeong I¹, Park S¹, Kim K², Choo M¹, Kim C¹, Kim K¹

¹Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea; ²Chung-Ang University College of Medicine, Seoul, South Korea

Introduction and Objectives: Laparoscopy-assisted extracorporeal pyeloplasty (LEP) is one of

UP.348, Table 1. Uni- and multivariate regression analysis for prediction of successful outcome after pyeloplasty

| | Univariate | | | Multivariate | | |
|----------------------|--------------|--------------------|--------------|--------------|--------------------|--------------|
| | OR | 95% CI | P | OR | 95% CI | P |
| Gender | 0.615 | 0.094-4.039 | 0.613 | 2.671 | 0.169-42.240 | 0.485 |
| Age at op | 1.002 | 0.984-1.021 | 0.797 | 1.018 | 0.989-1.048 | 0.233 |
| Op method | 0.224 | 0.024-2.136 | 0.194 | 0.347 | 0.029-4.210 | 0.347 |
| Preop HN grade | 2.089 | 0.464-9.401 | 0.337 | | | |
| Preop APPD | 1.102 | 0.528-2.298 | 0.796 | | | |
| Split renal function | 1.014 | 0.943-1.090 | 0.705 | | | |
| Dismember or not | 0.151 | 0.011-2.046 | 0.155 | | | |
| Preop stone | 1.683 | 0.000- | 0.999 | | | |
| Preop UTI | 0.400 | 0.037-4.306 | 0.450 | | | |
| Preop GHU | 1.584 | 0.000- | 0.999 | | | |
| Preop PCN | 1.584 | 0.000- | 0.999 | | | |
| Preop RGP | 0.419 | 0.063-2.799 | 0.369 | | | |
| Crossing vessel | 0.031 | 0.003-0.321 | 0.004 | 0.031 | 0.003-0.321 | 0.004 |
| Stent insertion | 0.259 | 0.027-2.470 | 0.241 | 0.813 | 0.021-31.834 | 0.912 |
| PCN insertion | 1.615 | 0.000- | 0.999 | | | |

the surgical options for treatment of pediatric ureteropelvic junction obstruction. We report our experience and compare the outcomes between open and LEP in pediatric patients.

Materials and Methods: We retrospectively reviewed the medical records of 36 children who underwent LEP and 36 age- and gender-matched pediatric patients who underwent open dismembered pyeloplasty for ureteropelvic junction obstruction at a single institution between 1996 and 2012. For laparoscopic surgery, ureteropelvic junction or ureters were dissected laparoscopically and were brought up to the level of the abdominal cavity near the camera port site for dismembered pyeloplasty under direct vision. Successful surgery was defined as resolution of symptoms, improvement of hydronephrosis on follow-up ultrasound, and improvement of drainage on diuretic renal scan.

Results: Mean age was 107.9 ± 51.4 months for open and 116.0 ± 51.5 months for LEP ($p=0.545$). Distribution of laterality, mean BMI and preoperative anteroposterior pelvic diameter on ultrasound were not different between the groups. Mean operative time was 192.5 ± 67.1 minutes for open and 197.4 ± 38.9 minutes for LEP ($p=0.733$). Ureteral stent was less frequently inserted in open group than in LEP group (33.3% in open vs. 74.3% in LEP, $p=0.004$). Hospital stay was shorter in LEP group ($p=0.051$). Mean follow-up duration was 49.0 ± 31.8 months for open and 20.2 ± 14.9 months for LEP ($p<0.001$). Primary success rate was similar between the groups (94.4% for open vs. 85.3% for LEP, $p=0.253$). Operative method, laterality, preoperative history of urinary tract infection, and stent insertion was not associated with successful outcome. Presence of aberrant vessel was the only factor that deteriorates successful outcome in uni- and multivariate regression analysis (Hazard ratio=0.031, 95% CI 0.003-0.321, $p=0.004$) (Table 1).

Conclusion: Open and laparoscopy-assisted extracorporeal pyeloplasty are effective surgical option for treatment of ureteropelvic junction obstruction, with similar success rate. Presence of aberrant vessel is a predictive factor for poor surgical outcome.

UP.349

Diurnal Temperature Change Is Not Associated with Testicular Torsion Incidence: A Nationwide Data in Korea

Choi W, Park H, Paick S, Kim H, Lho Y
Konkuk University Hospital, Seoul, South Korea

Introduction and Objectives: Many studies reported the relationship of testicular torsion and seasonality. Recently an association was reported about diurnal temperature change (DTC) and testicular torsion. The objective of this study was to confirm of the association of DTC and testicular torsion incidence using large nationwide data in Korea.

Materials and Methods: This study retrieved data from the Uro-PDS which is a database released by Korea urologic association (KUA). Uro-PDS data include age, diagnosis, kind of surgery, time of admission and time of discharge. We identified 587 orchiopey cases for testicular torsion between 2006 and 2011 in Seoul. Orchiectomy case data were excluded in the analysis. Climatic data of Seoul were provided by the Korea Metrological Administration and included ambient temperature and diurnal temperature change. We stratified the whole day of 6 year by DTC and temperature. Per each 1°C change, the incidence rate of number of admission/number of day was calculated. The final incidence rate was 67/253 (26%). Correlation analysis was performed between DTC, temperature and incidence rate. To identify seasonality, DTC and mean number of torsion episode of Spring (March-May), Summer (June-August), Autumn (September-November), and Winter (December-February) were analyzed.

Results: A total of 587 patients with a mean age of 16.7 years presented with testicular torsion and underwent orchiopey. Incidence rate was not correlated with DTC increase ($p=0.09$, Figure 1A) but correlated with temperature decrease ($r=-0.53$, $p<0.001$, Figure 1B). Among the four seasons, Spring (9.0°C) and Autumn (8.7°C) showed higher DTC than Winter

(7.3°C) and Summer (6.7°C). However, Winter season showed higher mean torsion episode (29.0 cases) than other seasons (Spring 26.0, Summer 18.3, Autumn 24.5 cases).

Conclusions: Low temperature and winter season was associated with increase of testicular torsion incidence. However, diurnal temperature change was not associated with testicular torsion incidence.

UP.350

Seasonality of Testicular Torsion: A 6-Year Nationwide Population Based Study

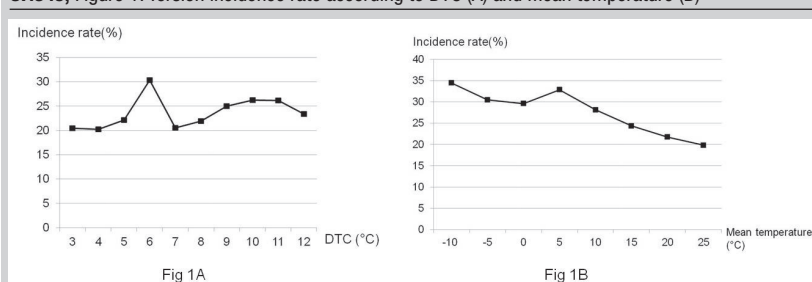
Choi W, Park H, Paick S, Kim H

Konkuk University Hospital, Seoul, South Korea

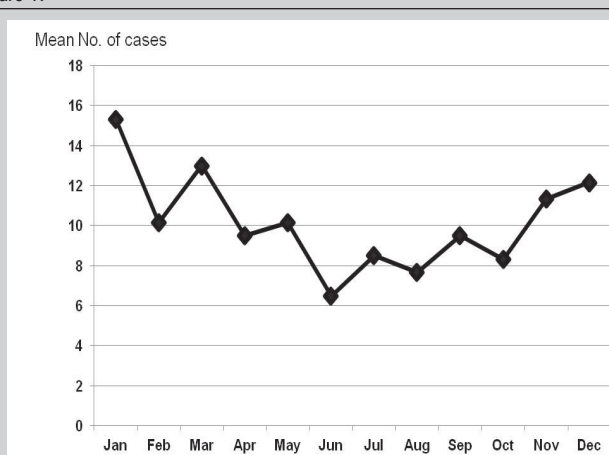
Introduction and Objectives: Using a 6-year nationwide data set, we examined seasonal variability in the monthly incidence of pediatric testicular torsion in Korea. We also investigated the association between meteorological factors (ambient temperature, relative humidity, atmospheric pressure and hours of sunshine) and testicular torsion.

Materials and Methods: This study retrieved data from the Uro-PDS. In Korea, all resident-training hospitals should report the data related urology surgery annually to Korea urologic association (KUA). After collecting and classifying the data, KUA releases the data as the name of Uro-PDS annually. Uro-PDS data include age, diagnosis, kind of surgery, time of

UP.349, Figure 1. Torsion incidence rate according to DTC (A) and mean temperature (B)



UP.350, Figure 1.



admission and time of discharge. We identified 733 orchiopexy cases for testicular torsion of children between 2006 and 2011. The age of subjects was younger than 18 years old (mean: 12.4±4.1 years old). ARIMA method (Auto-Regressive Integrated Moving Average) was used to test for seasonality in the incidence of testicular torsion. Correlation analysis was used to explore possible associations between climatic parameters and the monthly incidence of testicular torsion.

Results: The results demonstrated seasonal pattern in monthly incidence rates for testicular torsion. Testicular torsion showed the highest occurrence in January (Mean: 15.3±4.9 cases) and lowest number in June (Mean: 6.5±3.7 cases). The monthly incidence was negatively associated with ambient temperature ($r=0.53$, $p<0.001$). Other climatic factors were not associated with the torsion incidence. After adjusting for the time trend effect and climatic parameters, the ARIMA regression revealed that January had a significantly higher monthly incidence ($p=0.02$).

Conclusions: Our study shows that testicular torsion had seasonal variation. Winter season and low temperature were significantly associated with occurrence of testicular torsion in children.

UP.351

The Role of Endoscopic Injection of Bulking Agents in Patients with Persistent Vesicoureteral Reflux after Open Anti-Reflux Surgery

Bascuna R¹, Ha J², Lee Y¹, Lee H¹, Im Y¹, Han S¹

¹Yonsei University, Seoul, South Korea; ²Keimung University, Daegu, South Korea

Introduction and Objectives: We propose endoscopic treatment using bulking agents for persistent vesicoureteral reflux (VUR) after unsuccessful open anti-reflux surgery (ARS).

Materials and Methods: Patients with persistent VUR after open ARS then managed subsequently with endoscopic injection using dextranomer/hyaluronic acid copolymer (Dx/HA) or polydimethylsiloxane (PDMS) in our institution from January 2006 to December 2010 were included in the retrospective study. Age, sex, surgical technique, material used for injection, and voiding cystourethrogram (VCUG) findings, were analyzed.

Results: Nine patients (6 males, 3 females), consisting of 11 ureteral units, were included. Median age during surgery was 10 months (range 7 – 71) while during endoscopic treatment was 29 months (range 19 – 92). Median interval from surgery to injection was 21 months (7 – 36). Paquin technique was performed in 4 units, 3 of them with ureteral plication; intravesical detrusorhaphy in 3 units, 2 of them with ureteral plication; and extravesical detrusorhaphy in 4 units. Persistent VUR was treated using Dx/HA and PDMS endoscopic injection in 4 and 7 units, respectively. Plicated ureteral units used more amount of bulking agents compared to non-plicated ureters (2cc versus 1cc). Follow-up VCUG documented persistent VUR resolution in 10 out of 11 units (91%).

Conclusion: Endoscopic injection of bulking agents, a reliable and safe secondary procedure, offers good solution for correcting persistent VUR after open anti-reflux surgery. Orthotopic ureteroneocystostomy, often underutilized because of its perceived complication of VUR persistence, should be not be hesitated upon by surgeons as effective treatment is available if needed.

UP.352

Flexible Ureterorenoscopy and Lasertripsy (FURSL) for Paediatric Renal Calculi: Results from a Systematic Review

Ishii H¹, Griffin S¹, Agrawal V², Somani B¹

¹University Hospital Southampton NHS Trust, Southampton, UK; ²University of Rochester Medical Center, Rochester, USA

Introduction and Objectives: With advancement of technology and smaller flexible ureterorenoscopes it is now possible to treat paediatric renal stones with FURSL. We carried out a systematic review of literature to see the current evidence for FURSL in paediatric renal stones.

Materials and Methods: We looked at MEDLINE, PubMed, EMBASE and the Cochrane Library from January 1990 to December 2013. The inclusion criterion was all English language articles reporting on flexible ureteroscopy for paediatric renal stones reporting on a minimum of 5 cases. Studies reporting on rigid ureteroscopy and or treatment of adult stones or ureteric stones were not included.

Results: Five studies (187 patients) (Table 1) met the inclusion criteria reporting on FURSL

exclusively for paediatric renal stones. The mean age was 7 years (range: 0.2-15 years) with a male to female ratio of 85:72. The mean stone size was 10.6mm (range: 1-30mm) with a stone free rate (SFR) of 82% of which 87 (91%) patients had a post-operative stent inserted. Complications included 5 intra-operative ureteric perforations and 22 minor post-operative complications (Haematuria-7; UTI-10; abdominal pain-2; voiding disturbances-2; and nausea/vomiting-1).

Conclusions: Paediatric FURSL for renal stones has a relatively high success rate. It should be done in an expert high volume centre.

UP.353

Ureteroscopy for Paediatric Stone Disease: Results from a University Teaching Hospital

Chedgy E, Griffin S, Somani B

University Hospital Southampton NHS Trust, Southampton, UK

Introduction and Objectives: The use of ureteroscopy for the treatment of paediatric stone disease has risen in recent years. We reviewed the results of ureteroscopic stone management for the regional paediatric stone service in our University teaching hospital.

Materials and Methods: Between April 2010 and January 2014, consecutive patients who had ureteroscopy and stone fragmentation were identified. Data was recorded from electronic records for patient demographics, pre-operative assessment, stone characteristics, intra- and post-operative complications.

Results: Twenty-two patients (mean age 9 years; range: 1.4-16 years) had 36 procedures done (14 males and 8 females). These patients were referred from distances ranging from 6-210 miles (mean 72 miles). Of these 22 patients, 16 (72%) were stone free after the first procedure, 18 (82%) after a second and 21 (95%) after a third (mean 1.5 procedures/patient). One patient with a 6mm residual fragment chose to have surveillance. Five (23%) had a metabolic abnormality, 9 (41%) had an anatomical abnormality and 8 (37%) with underlying congenital or other comorbidities. The mean initial stone size was 10.8mm (range: 5-20mm) with 22 procedures done for stones above PUJ and 14 for stones below the PUJ. The stone analysis was available for 14 patients (5 calcium phosphate, 4 calcium oxalate, 3

UP.352, Table 1. Studies included in the systematic review

| Author | Journal | Year | Period of review | Country | No. of pts | Mean age (range) | Mean stone size (mm) | SFR (%) |
|----------------|--------------------------|------|------------------|-----------|------------|------------------|----------------------|---------|
| Corcoran et al | J Urol | 2008 | 2003-2007 | USA | 30 | 9.7 (2-14.4) | 8.8 (1.5-25) | 98 |
| Tanaka et al | J Urol | 2008 | 2002-2007 | USA | 50 | 7.9 (1.2-13.6) | 8 (1-16) | 58 |
| Unsal et al | J Paeds Surg | 2011 | 2006-2010 | Turkey | 16 | 4.2 (0.8-7) | 11.5 (8-17) | 88 |
| Erkurt et al | Urolithiasis | 2013 | 2005-2013 | Turkey | 65 | 4.3 (0.5-7) | 14.6(7-30) | 92 |
| Yeow et al | J Indian Assoc Paed Surg | 2009 | 1997-2006 | Australia | 26 | 8 (0.2-15) | 10.3(3-21) | 88.5 |

magnesium ammonium phosphate, 2 uric acid and 1 cystine stone). Of the 36 procedures, 20 (56%) had a pre-operative stent. A positive pre-operative urine culture was seen in 5 (14%). CT KUB was only used in 7 (19%) with the rest having a combination of USS and or plain KUB. The energy source used for fragmentation was laser in 31 (86%) patients, lithoclast in 1 (3%) with the remaining 4 (11%) having basket extraction. Twenty (56%) had post-operative stent insertion. Mean length of stay was 1.5 days (range: 0-5 days). No major Clavien complications were recorded. Minor complication was observed in 2 (5.5%), the first patient needed additional oral antibiotics for UTI and a second patient with stent encrustation needed a ureteroscopic retrieval.

Conclusions: Our results show that all patients were stone free at the end except for one patient who chose to undergo surveillance. Ureteroscopy for stone disease in children is feasible with a low complication rate and high stone free rate.

UP.354

Modified Arab Technique for Distal Penile and Coronal Hypospadias Repair: Simple, Easy and with Less Complications

Ismail M, Mehena A, El Baz A, Alesaly K
Theodore Bilharz Research Institute, Giza, Egypt

Introduction and Objectives: Distal penile and coronal hypospadias are the most common types of hypospadias. There are multiple techniques for their treatment, like MAGPI, Snodgrass, Mathieu and Arab. In this work we describe a new technique that is simple, efficient easy to learn and with few complications with no use of stents, urethral catheter or need for urinary diversion.

Materials and Methods: For more than 3 years, 33 kids were admitted to our department for the treatment of distal penile and coronal hypospadias, their age range was 1-5 years. Modification of Arab technique was applied. First a transverse ventral skin incision 1-2 cm proximal to the urethra opening and dissection of the skin both proximal and distal; then the urethra was mobilized anteriorly by making a dorsal central incision in the urethral plate from its tip to within the urethral opening to widen it if the urethral opening was tight. The urethral incision was closed transversely. Then the distal skin edge was pulled at 2 points around the urethral opening making the roof for the mobilized urethra and 2-3 stitches fix that roof in place. The whole process takes about 10 – 15 minutes. No stents or urethral catheter was left and all patients were discharged in the same day.

Results: Twenty nine patients passed the post operative period uneventfully, 4 patients had either partial 2 patients or complete 2 patients loss of the skin stitches holding the roof. Of the partial loss of the skin stitches 1 chose to do nothing as he was satisfied with the results and

the other had redone the lost stitches (2). While the total loss patients had either redone the operation (1) or TIP operation (1 patient).

Conclusion: This is a very simple operation that takes 10 minutes and has functional and cosmetic outcome comparable to other operations. Modified Arab is a simple cost effective and easy to learn procedure.

UP.355

Effect of Urine PGE2 Level on Bladder Growth

Ebiloglu T¹, Kibar Y², Irkilata H², Kaya E², Ergin G³, Yaman H⁴

¹Dept. of Urology, Etimesgut Military Hospital,

Ankara, Turkey; ²Dept. of Urology, Gulhane

Military Medical Academy, Ankara, Turkey;

³Dept. of Urology, Sarikamis Military Hospital,

Sarikamis, Turkey; ⁴Dept. of Biochemistry, Gulhane Military Medical Academy, Ankara, Turkey

Introduction and Objectives: Prostaglandins (PG) occur through the pathway starts with the cleavage of membrane phospholipids by Phospholipase C to form arachidonic acid and ends with the reaction of arachidonic acid with cyclooxygenase enzyme to form various forms of PGs. These PGs play different role in different structures of body. Growing child cannot be thought as an adult. In every step of growth many changes occur in the body. Bladder movements change and synchronize by years. In this research we wanted to identify if the PGE2 level changes and affects the bladder growth or not.

Materials and Methods: Forty-eight children between 5-15 age and attending to hospital for routine body weight and height control were enrolled in this study. In order to exclude urinary pathologies meticulous physical and neurological examination, urine sample, hemogram, blood urea and creatinine, direct graph of abdomen, USG and lower urinary tract symptom scale were applied. No urinary pathologies were detected. Correlation between child age and urine PGE2 level were examined by using Pearson correlation test.

Results: There were 22 girls and 26 boys. Mean age was 9.26 ± 2.87 . Correlation between child age and urine PGE2 level was not statistically significant ($p=0.71$).

Conclusion: Urine PGE2 level cannot be thought as an agent on bladder growth.

UP.356

Color Doppler Sonographic Ureteral Jets Measurement in Evaluation of Congenital Hydronephrosis

Asanuma H¹, Satoh H², Matsui Z², Masuda A¹, Mizuno R¹, Oya M¹

¹Keio University, Tokyo, Japan; ²Tokyo Children's Medical Center, Tokyo, Japan

Introduction and Objectives: Hydronephrosis and obstruction are closely associated, but

upper urinary tract dilatation can occur without significant obstruction in children. Despite some pitfalls, conventional ultrasonography (US) and renography are the main means of evaluation of congenital hydronephrosis. The aim of this study was to evaluate color Doppler sonographic ureteral jets measurement as a diagnostic tool to distinguish obstructive from non-obstructive hydronephrosis in children.

Materials and Methods: We evaluated 45 pediatric patients (mean age: 4.2 years) who presented with unilateral grade III or IV hydronephrosis with pyeloureteral junction obstruction. All patients underwent renography and evaluation of ureteric jets by transverse color Doppler US of the bladder. Obstruction was considered in the renography when the hydronephrotic unit showed a differential renal function of less than 45%, in the US when renal pelvic dilatation was up-graded, or in the clinical follow-up when symptom related to hydronephrosis such as renal colic pain and breakthrough infection was present. The number of ureteric jets was counted over a 5-min period and the frequency calculated for each ureteral orifice. Relative jet frequency (RJF) was defined as frequency of the hydronephrotic side divided by total ureteric jet frequency.

Results: Obstructive and non-obstructive hydronephrosis were considered in 20 and 25 patients, respectively. The mean RJF differed between obstructive (0.109, range 0-0.389) and non-obstructive hydronephrosis (0.453, range 0.143-1) ($p<0.01$). The overall ability of RJF to detect obstructive hydronephrosis as given by the area under ROC curve was 0.96. Each cut-off of RJF <0.25 , <0.3 , <0.35 was correctly discriminated obstruction with a sensitivity of 87.5%, 93.8%, 93.8% and specificity of 93.8%, 87.5%, 87.5%, respectively.

Conclusions: Color Doppler US evaluation of ureteric jets is an easy and non-invasive method that can be used as an initial diagnostic tool to differentiate obstructive from non-obstructive hydronephrosis in children.

UP.357

Development of a Reliable Grading System for Bladder Trabeculation in the Pediatric Population with Neurogenic Bladder

Watts B¹, Hidas G², Kelly M¹, Soltani T³, Wehbi E¹, McAleer I¹, McLorie G¹, Khoury A¹

¹UCI Dept. of Urology, CHOC Children's Hospital of Orange County, Orange, USA;

²Hadassah and Hebrew University Medical Center, Jerusalem, Israel; ³University of Michigan Medical School, Ann Arbor, USA

Introduction and Objectives: Bladder trabeculation is commonly seen in patients with a neurogenic bladder and is the result of smooth muscle hypertrophy secondary to asynchrony between the detrusor muscle and the bladder outlet. Radiologists and urologists not only note trabeculation in their patients, but it can

influence their decisions about plan of care; therefore, it is important that radiologists and urologists reliably communicate about the severity of trabeculation. Because of the lack of a reliable grading system for bladder trabeculation in the pediatric patient with neurogenic bladder, I aimed to develop definitions for grading bladder trabeculation in children with neurogenic bladder.

Materials and Methods: An expert panel of three pediatric urologists contributed to the development of a grading system for bladder trabeculation in the pediatric patient with neurogenic bladder by developing a domain of observables and definitions for different grades of trabeculation in the pediatric patient with spina bifida and neurogenic bladder. The grading system was then demonstrated to nine raters including pediatric urologists, an urologist, pediatric urology nurse practitioners, a certified nurse anesthetist, and a lay person. Each rater evaluated nine bladders, representing a range of trabeculation severity, using an anteroposterior (AP) view towards the end of filling on cystography. The nine raters' results were analyzed with intra-class correlation coefficient (Cohen's Kappa and Spearman's Rho) to establish inter- and intra-rater reliability.

Results: An intraclass correlation coefficient of 0.987 with a 95% confidence interval (CI) of 0.970-0.977, $p < 0.001$ resulted indicating a high degree of inter-rater reliability. A Cohen's Kappa statistic ranging from 0.830-1.0, $p < 0.001$ and Spearman's ρ correlation coefficient ranging from 0.930-1.0, $p < 0.001$ were found for the nine bladder images thus documenting more than satisfactory results for intra-rater reliability.

Conclusion: The robust findings for inter- and intra-rater reliability will allow clinicians and radiologists to communicate standardized levels of trabeculation to one another. The grading system will also serve as the foundation to later correlate clinical findings and outcomes to trabeculation severity, in future validation studies. Results from such studies could be useful in guiding clinical decision-making involving trabeculation grade.

UP358

Impact of Grade and Type of Vesicoureteral Reflux on the Outcome of Deflux Injection in Children

Tirbay M, Abdel-Fattah M, Zakaria M, El-Bahnasawy M

Prince Saman Hospital, Tabuk, Saudi Arabia

Introduction and Objectives: Vesicoureteral reflux (VUR) is a common and major urological problem in children. Its incidence ranges from 1% to 3% in healthy children and 20% to 35% in children with urinary tract infection. Deflux injection has gained popularity and is now considered a valid alternative both to open

surgery and antibiotic prophylaxis. Aim of the study is to evaluate the success of Deflux injection in relation to different grades and types of VUR in our children.

Materials and Methods: The study included 46 children (33 boys and 13 girls) with 63 refluxing ureteral units as determined by voiding cystourethrogram (VCUG). STING technique was used for low grade VUR (grade II, and III) while hydrodistension implantation technique (HIT) technique was used for high grade VUR (grade IV and V). All the patients were followed up with voiding VCUG at 3 months after the procedure.

Results: Cure rate for grade II was 100% (3/3), grade III 94% (17/18), grade IV 88.8% (16/18), and grade V 54.2% (13/24). Overall cure rate for low grade VUR (II, and III) was 95.2% (20/21) versus 69% (29/42) for high grade VUR (IV and V) ($P < 0.001$). Resolution of VUR for 43 renal units with primary VUR was 83.7% (36/43) versus 65% (13/20) for 20 renal units with secondary VUR ($P = 0.005$). Overall cure rate was 70% (44/63) with a single injection, and a second injection raised the cure rate to 77.8% (49/63) per renal unit.

Conclusion: Different types and grades of VUR greatly affect the outcome after correction by Deflux. Follow-up and repeat Deflux injection is expected to improve the outcome. We recommend endoscopic treatment with Deflux as a first-line therapy for most cases of VUR, particularly primary and low grades.

UP359

Predictors of Enuresis among Primary School Children

Elderwy A, Kurkar A, Mohamed M, Khair A, Aboulella H

Dept. of Urology, Assiut University Hospital, Assiut, Egypt

Introduction and Objectives: Enuresis is a widespread and potentially disabling disorder in children. In the present study, we have determined the prevalence of enuresis in two different districts (urban vs. rural) to investigate the predictors of enuresis in our population.

Materials and Methods: A cross-sectional epidemiological study was carried out on randomly selected 1800 primary school children (6 to 14 years old). Data was collected through a parent-completed questionnaire created by the researchers. Enuresis was defined as intermittent incontinence while asleep at least once a month in the last year.

Results: Of the questionnaires distributed, 1596 (88.7%) were completed. Prevalence of enuresis was 11.3% ($n = 181$); enuresis occurred every night in 49.2%. On multivariate analysis, the predictors of enuresis were: younger age (adjusted OR = 0.87, 95% CI = 0.79-0.95), fourth or more born child (adjusted OR = 2.3, 95% = 1.4-3.5), middle family

affluence (adjusted OR = 1.9, 95%CI = 1.3-3.2), family history of enuresis (adjusted OR = 4.5, 95%CI = 3.2-6.3), recurrent upper respiratory tract infections (adjusted OR = 1.8, 95%CI = 1.2-2.5), and initiation of toilet training after the age of 3 years (adjusted OR = 3.8, 95%CI = 2.5-5.7).

Conclusions: Early toilet training before 3 years of age and prevention of recurrent upper respiratory tract infections are modifiable factors which may help prevent enuresis. Parental awareness needs to be created.

UP360

Prognostic Factors in Penile Cancer Patients with Negative Inguinal Lymph Nodes

Aita G¹, Zequi S², Guimarães G², Soares F², Werneck da Cunha I², Costa W², Vassalo J³, Lopes A², Campos R², Sousa P⁴

¹Hospital São Marcos, Teresina, Brazil; ²AC Camargo Cancer Center, São Paulo, Brazil;

³Universidade Estadual de Campinas, São Paulo, Brazil; ⁴Fundação Municipal de Saúde, Teresina, Brazil

Introduction and Objectives: The inguinal lymph node (ILN) involvement is an unfavorable prognostic factor for survival in patients with squamous cell carcinoma of the penis (SCCP). However, the absence of lymph node metastasis is not an absolute guarantee of treatment success. Some of these patients develop locoregional recurrence or distant progression. The impact of the primary tumors features in the outcomes in the subjects with pathologically negative (pN0) and/or clinically negative (cN0) ILN is also unknown. This study evaluated clinicopathologic variables of a cohort of SCCP patients with pN0 and cN0 ILN and analyzed their respective prognostic impact factors for 10-year-overall survival (OS), cancer-specific survival (CSS) and disease-free survival (DFS).

Materials and Methods: The group was composed by 165 patients with pathologically negative ILN (pN0 subgroup) and 96 patients with clinically-negative nodes who were followed for 3 or more years with no recurrence (cN0 subgroup). A central pathologic review was carried out by a skilled pathologist. The clinicopathological variables were studied, in addition to the front pattern of invasion according to the modified criteria of Anneroth and Bryne. The Kaplan-Meier method was used to determine survival rates. Univariable and multivariable Cox regression models were fitted to test the predictors of survival rates.

Results: The 10-year-OS, CSS and DFS of cN0 and pN0 cohort were 59.7% vs. 52.7% ($p = 0.0049$), 96.4% vs. 87.1% ($p = 0.001$), and 95.2% vs. 86.0% ($p = 0.025$), respectively. In the multivariate analysis, the histologic grade was an independent predictor factor for 10-year-CCS and 10-year-DFS in the cN0 subgroup. The standard infiltrating invasion

was associated with a lower 10-year-CSS ($p = 0.027$) and lower 10-year-DFS ($p = 0.019$) in pN0 subgroup on univariate analysis.

Conclusion: The cN0 patients had better 10-year-OS, CSS and DFS than the pN0 ones. On univariate analysis, infiltrating pattern of invasion was associated with higher risk of tumor recurrence and cancer mortality in pN0 group. The presence of high-grade tumor was an independent unfavorable prognostic factor for DFS and CSS of patients with clinically negative ILN.

UP361

The Role of Glans Resurfacing in the Treatment of Pre-Malignant Lesions of the Penis: An 11-Year Experience

Kaul A, Nair R, Ayres B, Watkin N
St George's Hospital, London, UK

Introduction and Objectives: Pre-malignant penile lesions (penile intraepithelial neoplasia, PeIN) can be difficult to differentiate from benign dermatoses or early invasive cancers. Centralisation of penile cancer services has increased our experience in managing such lesions and in selecting patients for glans resurfacing. We report on the accuracy of diagnosis and oncological outcome of total and partial glans resurfacing (TGR and PGR respectively) in treating these lesions.

Materials and Methods: From 2002-2013, 52 patients underwent glans resurfacing for suspected pre-malignant disease of the glans diagnosed by clinical examination or pre-operative biopsy. Definitive histology and margin status were obtained from a prospective database.

Results: Thirty three (63%) patients underwent TGR and 19 (37%) were treated with PGR. Thirty five (67%) had biopsies confirming PeIN and 17 (33%) had surgery based on clinical suspicion alone. Biopsy was accurate in 19 out of 35 patients (54%), missed invasive disease in 8 (23%) and 8 (23%) had benign disease on final histology. Clinical examination was accurate for PeIN in 12 out of 17 (70%), missed invasive disease in 2 (12%) and 3 (18%) had benign disease on final histology. There was no statistically significant difference in diagnostic accuracy between biopsy and clinical examination on chi-squared test ($p=0.261$). Positive margins were observed in 5 out of 33 (15%) and 8 out of 19 (42%) for TGR and PGR respectively. This difference was statistically significant ($p=0.031$).

Conclusion: Glans biopsies can lead to both under- and over-staging of suspected pre-malignant penile lesions and clinical suspicion is equivalent to biopsy in assessment. Margin positivity is significantly higher for PGR than TGR and this finding should be discussed in pre-operative counselling with patients.

UP362

Morbidity of Inguinal Lymphadenectomy in Penile Cancer: Review of a Contemporary Series from a Single Institution

Castelo D, Tavares-Silva E, Marques V, Dinis P, Figueiredo A, Mota A
Dept. of Urology and Renal Transplantation, CHUC, Coimbra, Portugal

Introduction and Objectives: Squamous cell carcinoma of the penis has a tendency to metastasize through a lymphatic route, with a stepwise progression. This makes lymph node dissection a promising staging and therapeutic approach. Nonetheless, it is not routinely performed in all cases due to its high morbidity. Several modifications of the surgical technique have been described to improve its outcome. In this study the authors describe the contemporary morbidity associated with inguinal lymph node dissection at a single academic centre.

Materials and Methods: Retrospective review of intra and postoperative complications of lymph node dissections performed in the context of squamous cell carcinoma of the penis at a single academic centre between 2006 and September 2013.

Results: Of 36 patients treated for squamous cell carcinoma of the penis at our institution, 16 (44%) underwent lymph node dissection. A total of 27 inguinal regions were analyzed; including 3 superficial lymph node dissections (11%), 13 superficial and deep dissections (48%), 8 modified lymphadenectomies (30%) and 3 dynamic sentinel lymph node excisions (11%). No intraoperative complications were reported. Post-operative complications were reported in nine patients (56%), affecting 14 inguinal regions (52%). The most common complication was deep infection of the surgical wound, affecting 7 inguinal regions (26%) in 5 patients (31%). The second most common complication was skin necrosis, in 7 inguinal regions (26%) of 4 patients (25%); half of these patients also had wound infection. Of these, 3 patients required surgical debridement and myocutaneous flaps, and another one primary closure of the wound. The remainder were treated with medical therapy. Prolonged lymphorrage affected 5 inguinal regions (19%) in 3 patients (19%), having resolved with external drainage. One patient had a lymphocele requiring percutaneous drainage and another patient had chronic lymphedema of the scrotum requiring plastic surgery.

Conclusion: The incidence of postoperative complications remains high in contemporary series of inguinal lymph node dissections for the treatment of squamous cell carcinoma of the penis. Most of these complications require additional surgical and percutaneous procedures, which precludes inguinal lymphadenectomy from being recommended in all patients with penile cancer. If indicated, this technique should be centralized in high volume centres.

UP363

The Management of Patients with Non-Visualisation following Dynamic Sentinel Lymph Node Biopsy for Penile Cancer

Rasool K¹, Saad Z¹, Shah P¹, Arya M¹, Minhas S¹, Malone P², Nigam R³, Bomanji J¹, Muneer A¹

¹UCLH, London, UK; ²Royal Berkshire Hospital, Reading, UK; ³Royal Surrey Hospital, Guildford, UK

Introduction and Objectives: Lymphatic drainage from penile tumour occurs bilaterally to inguinal basins. In clinically impalpable inguinal nodes dynamic sentinel lymph node biopsy (DSNB) detects the first draining lymph node on each side. In some patients lymphoscintigraphy may only demonstrate the sentinel lymph node on one side. Our aim was to review the management, outcomes and identify risk factors in patients with unilateral non-visualisation following DSNB.

Materials and Methods: Patients diagnosed with penile cancer and clinically impalpable inguinal nodes (cN0) underwent DSNB following surgery for the primary tumour. DSNB was performed using ^{99m}Tc injected proximal to the original tumour site and planar lymphoscintigraphy was performed at 20 and 120 minutes. In cases of non-visualisation, either a further ^{99m}Tc dose was given with delayed images or patient underwent unilateral exploration of the visualised site with on table assessment of the non-visualised site for gamma probe activity before considering exploration. Where there was no exploration, patients either underwent further DSNB procedure at a later date with back up superficial modified lymphadenectomy (SML) or clinical surveillance.

Results: In a cohort of 116 patients, 16 (13.8%) were found to have unilateral non-visualisation. In this subset of patients, no exploration was performed due to lack of on table gamma probe activity. Six patients were offered a repeat DSNB procedure at later date with 5 of these had successful visualisation. A further 7 patients were offered SML due to high stage primary disease, all of which revealed no metastatic disease. Three patients (all with G2 disease) opted for clinical surveillance and remain disease free after mean of 11 months. In our study the median follow-up was 27 months.

Conclusion: Ideally patients undergoing DSNB with \geq T1G2 disease should have bilateral inguinal visualisation. Repeat DSNB was successful in localising the lymph nodes in 83% of cases. Based on the original tumour histology patients with \geq T1G3 + lymphovascular invasion were offered SMILD but still found to have pN0 disease. This suggests that DSNB should be offered as a repeat procedure following unilateral non-visualisation as it has lower morbidity and high probability to detect the sentinel lymph node.

UP364

A Hypogastric Subcutaneous Approach for Endoscopic Inguinal Lymphadenectomy: Chinese Preliminary Experience

Liu C, Zheng S, Li H, Xu A, Chen B, Wang Y, Xu P

Southern Medical University, Guangzhou, China

Introduction and Objectives: To report the technique of the hypogastric subcutaneous approach for endoscopic inguinal lymphadenectomy and evaluate the simplicity, effectiveness and importance in treatment of patients with penile cancer.

Materials and Methods: From June 2011 to April 2013, 13 patients who have indications of inguinal lymph node cleaning underwent endoscopic inguinal lymphadenectomy via a hypogastric subcutaneous approach. The groin and pelvic lymph nodes were scanned by CT before operation. We used a minimally invasive approach with four trocars placed in the hypogastrium (respectively at the infraumbilical, both sides of the lateral rectus abdominis, anti McBurney point). Superficial inguinal group, Cloquet's group and deep inguinal group of lymph node and adipose tissue are dissected. Vacuum sealing drainage tube and compression bandaging inguinal indwelling are placed after surgery. Perioperative data and postoperative outcomes were systematically assessed.

Results: All laparoscopic procedures were successfully performed without conversion and intraoperative complications. Average (range) operative time for the endoscopic procedure was 116.7 (102–156) minutes, with estimated blood loss of approximately 92 (40–150) mL. A mean (range) of 11.7 (6–20) nodes were retrieved. The drainage tube was removed on average time of 5.2 days whereas the mean hospital stay was 5.8 days. Of the 13 patients, only 1 patient exhibited subcutaneous hydrops. No other serious long-term complications were observed. All patients were followed-up for more than 8 months with no significantly lower extremity swelling and movement disorder. One patient was found upper right lung metastasis 6 months after surgery.

Conclusion: Hypogastric subcutaneous approach for endoscopic inguinal lymphadenectomy is a safe and feasible technique that may further diminish the wound-related complications associated with the standard open procedure and that through leg video retrograde endoscopic inguinal lymphadenectomy. This approach could be performed during the dissection, which ensures the sweeping range with reducing surgical complications and improving the quality of life. However, its long-term therapeutic effects for cancer is still need large size with longer follow-up studies to be evaluated.

UP365

Carbon Dioxide Laser Ablation of Penile Carcinoma-in-situ: Results from a Regional Penile Cancer Referral Centre in United Kingdom

Khan R, Hendry D

Gartnavel General Hospital, Glasgow, Scotland, UK

Introduction and Objectives: Penile carcinoma-in-situ (CIS) is treated using penis-preserving treatments like laser therapy [Carbon dioxide (CO₂) laser and Nd:YAG laser], Mohs micrographic surgery, Photodynamic therapy and topical chemotherapy (5 fluorouracil). Clinical guidelines acknowledge the lack of scientifically rigorous comparative data for above modalities in published literature and therefore recommend that treatment should be tailored according to location and size of lesion and experience of treating Urologist. CO₂ laser is the treatment modality of choice for penile CIS in our centre. We report the results of all histologically proven penile CIS cases treated with this modality in our unit over a 7-year period (2007–2014).

Materials and Methods: We performed a retrospective review of all patients identified from the theatre procedure book for CO₂ laser ablation for penile CIS from 2007 to 2014. Case notes were reviewed to assess the oncological outcome.

Results: A total of 52 CO₂ laser ablation procedures were identified. These patients were treated between July 2007 and March 2014. Twelve were excluded from analysis due to absence of histological evidence of CIS at the time of treatment, inadequate follow-up data or no follow-up since the treatment. Forty CO₂ laser ablation procedures, done in 38 patients, with histologically proven CIS were analysed. Average age at the time of treatment was 56 years (Range 21–88). Average follow-up was 27 months (Range 1–70). Thirty five treatments (87.5%) showed no post procedure recurrence whereas 5 treatments in 4 patients (12.5%) showed recurrence of tumour. One patient developed recurrence on two occasions and both times he was treated with further CO₂ laser ablation. Two patients were treated with Glans resurfacing and split thickness skin graft. One patient (2.5%) had invasive disease on biopsy of recurrence which was treated by primary excision. No patient developed metastatic disease related to penile cancer.

Conclusion: We have achieved excellent oncological control with low recurrence rate of 12.5% using this treatment modality. Our recurrence rate is better than other treatment modalities reported in other global contemporary series. To our knowledge, our cohort is one of the largest in the literature for penile CIS treatment using CO₂ laser ablation.

UP366

Comparison of Robot-Assisted and Laparoscopic Pelvic Lymphadenectomy in Penile Cancer Patients with Stage N2/N3 Inguinal Disease

Blick C, Taylor H, Buxton J, Nigam R, Minhas S, Kelly J, Muncer A

Dept. of Urology, University College Hospital, London, UK

Introduction and Objectives: Favourable outcomes using robot assisted pelvic lymphadenectomy (RAPL) have already been demonstrated in bladder and prostate cancer. Current EAU guidelines recommend that penile cancer patients with more than one metastatic inguinal lymph node found at radical inguinal lymphadenectomy should undergo an ipsilateral pelvic lymphadenectomy. We report a single centre experience of RAPL in penile cancer patients with N2 and N3 disease and compare this to penile cancer patients undergoing laparoscopic pelvic lymphadenectomy (LAPL).

Materials and Methods: A total of 6 patients (mean age 61) diagnosed with penile cancer underwent RAPL and a further 6 patients (mean age 61) underwent LAPL. All of the patients were diagnosed with at least N2 inguinal disease following a radical inguinal lymphadenectomy. The pelvic lymph node dissection was performed at a separate sitting on the ipsilateral side to the N2/N3 disease to the level of the common iliac bifurcation. Nodal yield, operation time and hospital stay was compared between the two procedures.

Results: RAPL and LAPL were each performed on 9 pelvic lymph node chains and achieved a mean nodal yield (range) of 4.6 (1–10) and 3.1 (0–9) nodes respectively ($p=0.33$). Mean operation time (range) was 180 (140–225) minutes for RAPL and 144 (55–235) minutes for LAPL ($p=0.26$), while mean length of hospital admission (range) was 1.5 (1–2) days and 5.7 (2–11) days respectively ($p=0.016$). Post-operative complications following RAPL were limited to a port-site hernia ($n=1$) and wound infection ($n=1$) both of which resolved on follow-up; after the laparoscopic procedure two patients developed a groin lymphocele.

Conclusion: Early outcomes from this series indicate that RAPL is safe and compares favourably with laparoscopic pelvic lymphadenectomy in patients with penile cancer. Initial results suggest a shorter convalescence period and superior nodal yield. RAPL is therefore a feasible option for penile cancer patients. Simultaneous inguinal lymphadenectomy with on table frozen section to confirm >N2 disease proceeding to RAPL may be an option for the management of penile cancer patients.

UP367

Pre-Operative Detection of Regional Lymph Nodes in Penile Cancer Using Hybrid SPECT/CT Imaging in Dynamic Sentinel Lymph Node Biopsy (DSLNB)

Saad Z, Omorphos S, Bomanji J, Muneer A
UCLH, London, UK

Introduction and Objectives: Dynamic Sentinel Lymph Node Biopsy (DSLNB) for penile cancer patients with clinically palpable inguinal nodes currently uses 2-Dimensional planar lymphoscintigraphy at most centres. Metastatic spread to the lymph nodes has important prognostic value. Aim of this study was to investigate the role of SPECT/CT following 2-Dimensional planar lymphoscintigraphy (dynamic & static) in the detection and localisation of the sentinel lymph nodes in groin.

Materials and Methods: A qualitative (visual) review was performed on planar followed by SPECT/CT lymphoscintigraphy in consecutive 84 patients (age range 28-68 years) who underwent injection of ^{99m}Tc -Nanocolloid with 20mins of dynamic scanning. Static images were obtained at 90mins followed by SPECT/CT imaging. The lymph-nodes in each groin using planar lymphoscintigraphy were compared to those detected on SPECT/CT.

Results: A total of 272 nodes were identified using planar-scintigraphy whereas SPECT/CT identified 325 nodes. Of the additional 53 lymph-nodes detected by SPECT/CT, 28 were new nodes (left groin-22, right groin-5 and 1 at an unusual location in the upper thigh) while remaining 25 were found to not be nodes on SPECT/CT (7 in-transit radiotracer in lymphatic channels, 6 scatter mis-registration and 12 contaminations). Due to SPECT/CT identification, unnecessary groin explorations for these (25) false positive nodes was prevented. Moreover, SPECT/CT demonstrated precise localization of regional draining basin for 43 nodes (Inguinal 35, Pelvic 8), which were difficult to distinguish on 2-Dimensional planar scintigraphy.

Conclusions: The addition of SPECT/CT improved detection rate of true radiotracer avid lymph-nodes and delineated their precise (3-Dimensional) anatomical localization in draining basins.

UP369

Robot Assisted Pelvic Lymph Node Dissection: Early Experiences from a Tertiary Penile Cancer Service

Rudd I, Nair R, Bolgeri M, Kaul A, Issa R, Perry M, Sharma D, Anderson C, Watkin N, Ayres B
St George's Healthcare NHS Trust, London, UK

Introduction and Objectives: Pelvic lymph node dissection is recommended for penile squamous cell carcinoma in the presence of two or more positive inguinal nodes or any

nodes showing extracapsular extension. Robotic pelvic surgery has recognised advantages over open surgery in terms of reduced blood loss, pain and shorter hospital stay. Following the introduction of transperitoneal robot assisted pelvic lymph node dissection (RA-PLND) at our tertiary penile cancer service, we compared its safety and effectiveness against our previous open series (O-PLND).

Materials and Methods: Twenty two consecutive RA-PLND patients (median age: 59 years, range 48-77) were compared with 30 consecutive O-PLND patients (median age: 61 years, range 32-83). Prospectively collected data on lymph node yields, blood loss, transfusion requirements, length of stay and complications were analysed.

Results: We performed 10 unilateral and 12 bilateral RA-PLNDs and 8 unilateral and 22 bilateral O-PLNDs. A median of 7 nodes (range 2-19) per side were removed robotically. This compares to 5 (range 0-19) with the open technique ($p < 0.01$). Forty one percent of RA-PLND patients had positive nodes compared to 50% from the O-PLND group. Patients undergoing RA-PLND had a median recorded blood loss of 10mls (0-200mls), whereas for O-PLND it was 100mls (50-800mls) ($p < 0.01$). One patient in the O-PLND group required blood transfusion. The median post-operative stay for RA-PLND patients was 1 day (1-10), compared to 4.5 days (2-19) for O-PLND ($p < 0.01$). In the RA-PLND group there were 3 Clavien II (1 lymphocele, 1 DVT and 1 PE) and 1 Clavien III complications (a pelvic collection requiring percutaneous drainage). In the O-PLND group there were 13 Clavien II (4 wound infections or dehiscences, 4 cases of lymphoedema, 3 lymphoceles, and 2 haematomas) and 3 Clavien III (2 pelvic collections requiring percutaneous drainage and 1 wound infection requiring surgical debridement). Fifty percent of patients in the O-PLND group had at least one complication as opposed to only 14% in the RA-PLND group. One RA-PLND was converted to open.

Conclusion: In our initial experience RA-PLND compares favourably with O-PLND. We have seen significant improvements in length of hospital stay, blood loss and lymph node yields with a lower complication rate.

UP370

Glans Resurfacing as the Treatment for Invasive Penile Cancer

Acimovic M^{1,2}, Rafailovic D¹, Radovanovic M¹, Pejic T¹, Dzamic Z^{1,2}, Hadzi-Djokic J^{2,3}
¹Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia; ²School of Medicine, University of Belgrade, Belgrade, Serbia; ³Serbian Academy of Sciences and Arts, Belgrade, Serbia

Introduction and Objectives: Phallic sparing surgery for penile cancer can reduce

psychosexual morbidity associated with traditional operations. Our objective is to report our experience with organ preserving surgery as method for treatment of penile cancer.

Materials and Methods: Between February 2005 and March 2012, 16 patients (mean age 57 years) underwent phallic sparing surgery for penile cancer. All patients had squamous cell carcinoma (SSC) limited to the glans penis (T1 and T2 tumors confined to the corpus spongiosus). Penile preserving surgery included glansectomy and reconstruction with a split-thickness skin graft (SSG) harvested from inner side of upper arm. Multiple frozen sections of the peripheral margins were obtained, and all of them were free of tumor invasion. All patients were regularly followed-up, every 3 months for the 2 years, and every 6 months thereafter. Six weeks after the surgery, all patients were asked about their postoperative cosmetic outcome and erectile function.

Results: Final histology showed that 6 (37.5%) patients had T1 disease, and 10 (62.5%) had T2 disease. The mean follow-up was 36 months (range 12-80). There were no postoperative complications and local recurrence. One patient had inguinal lymph node metastasis two years after glans resurfacing, and he had undergone inguinal lymphadenectomy. All patients who had sexual ability before treatment, maintained sexual function 6-12 weeks after the surgery. Patients assessed cosmetic outcome as excellent in 13/16 (81.25%) cases and 3 patients were moderately satisfied. None of the patients had meatal stenosis or graft rejection.

Conclusion: Penile sparing surgery is oncologically safe and effective method for patients with squamous cell carcinoma of glans. Using this technique patients can preserve quality of life, sexual and urinary function of the penis.

UP371

Surgery in Peyronie's Disease: Our Experiences with Tunica Plication, Plaque Incision and Grafting with Gore-Tex

Passavanti G¹, Bragaglia A¹, Costantini F¹, Nucciotti R¹, Pizzuti V¹, Aloisi A²

¹Dept. of Urology, Misericordia Hospital, Grosseto, Italy; ²Dept. of Physiology, University of Siena, Siena, Italy

Introduction and Objectives: Peyronie's disease is a relatively common condition, with an incidence of 3-9%. It is often associated with diabetes and erectile dysfunction (ED). This condition causes a penile deformity that can affect sexual penetration and lead to psychological disorders because of the difficulty in accepting the situation.

Materials and Methods: We treated 45 patients for recurvatum penis secondary to Peyronie's disease. The clinical examination involved an accurate medical history, a physical examination to identify the plaque, ultrasonography to detect calcified plaque, and a photograph of the erect

penis to document the recurvatum and sand-glass deformity. In the case of ED, we administered the IIEF-5 and performed intracavernous injection of PGE1; in patients eligible for grafting, we also carried out a dynamic echocolour Doppler of the corpus cavernosum. Penis length was between 11.5 and 14.5 cm (13.25 ± 1 cm). In 39 patients with moderate curvature ($45-60^\circ$) we carried out tunica plication and in 6 cases with curvature $>60^\circ$ and with ED we performed plaque incision with grafting strips of polyester fluoropolymer (Gore-Tex).

Results: Correction of the recurvatum was good in all cases. In patients undergoing tunica plication, the shortening of the corpus cavernosum ranged from 0.5 cm (1 case) to 2 cm. Patients with ED, particularly those who received a synthetic graft, continued to take iPDE5, with good erections. The graft has never induced inflammation, scar retractions or pseudo-aneurysm expansion, even in the medium term (5 years). In all cases, we performed an extended dissection of the dorsal plexus and urethra.

Conclusions: A thorough diagnostic study of patients with proper indications for surgical treatment, a careful and detailed evaluation of the patient's expectations and extensive surgical dissection of the corpora cavernosa during surgery can provide good surgical results for both tunica plication and the polyester fluoropolymer graft. In our experience, this graft seems free of the complications thus far attributed to synthetic grafts.

UP.372

Which Factors Effect the Pain Perception during Cystoscopy under Local Anaesthesia?

Yilmaz O, Okcelik S, Ates F, Malkoc E, Soydan H, Senkul T

Dept. of Urology, GATA Haydarpaşa Training Hospital, Uskudar, Istanbul

Introduction and Objectives: To assess the factors that affect the pain perception during cystoscopy under local anaesthesia.

Materials and Methods: In our survey, male patients underwent diagnostic cystoscopy in urology department were determined for pain perception during diagnostic cystoscopy under local anaesthesia between June and December 2013. The patients who needed additional procedures like J-J catheter extraction, internal urethrotomy, cold cup biopsy and fulguration were excluded from the survey. Cystoscopy was performed after administering 2% lidocain gel to the urethra for local anaesthesia. For panendoscopy, 20 Fr rigid cystoscope was used. Anterior urethra, prostatic urethra, prostate and intravesical area were evaluated. We divided the patients in some groups as listening to classical music during cystoscopy procedure or not, older or younger than 65 years, first or recurrent cystoscopy, with and without BPH. The pain level while procedure was assessed by

ten points according to VAS pain score system. Statistical differences between the groups were assessed with SPSS 16.0. The p value for statistical significance was <0.05 .

Results: A total of 56 male patients underwent diagnostic cystoscopy under local anaesthesia between June 2013 and December 2013 in our department. Mean age was 66.6. Mean VAS score was 1.25 during entry and 1.91 during the cystoscopy procedure. These pain levels were acceptable for a medical diagnosis and there were not any patients wanted interruption of procedure for pain. Listening classical music did not affect the pain scores in any step of the procedure ($p=0.174$, $p=0.567$). See Table 1. There was not any difference between the old and young patients for pain perception ($p=0.761$, $p=0.521$). See Table 2. The enlargement of prostate did not effect the pain scores ($p=0.573$, $p=0.251$). See Table 3. Cystoscopy count was found as an independent factor for pain in our patients according to pearson

correlation ($p=0.0021$). See Table 4. The VAS scores were higher at first cystoscopies than recurrent ones. The reason might be orientation of patients to cystoscopy.

Conclusions: According to our study diagnostic cystoscopy can be performed under intraurethral topical anaesthesia. Only cystoscopy count affects the VAS scores. This study may show that the pain perception depends on becoming accustomed.

UP.373

A Novel Penoplasty Technique after Removal of Severe Foreign Body Granuloma: Modified Bilateral Scrotal Flaps

Jung G, Park S, Seo J, Ha S

Smile Jung's Urology Clinic, Busan, South Korea

Introduction and Objectives: Although worldwide incidence is not well known, foreign-body injection is often attempted in order to augment the penis. Definitive treatment of severe penile

UP.372, Table 1.

| Music | | N | Mean | P |
|--------|-----------|----|--------|-------|
| Entry | Music (-) | 28 | 1.5357 | 0.174 |
| | Music (+) | 28 | 0.9643 | |
| During | Music (-) | 28 | 2.0714 | 0.567 |
| | Music (+) | 28 | 1.7500 | |

UP.372, Table 2.

| | Age | N | Mean | P |
|--------|-----|----|--------|-------|
| Entry | <65 | 21 | 1.3333 | 0.761 |
| | >64 | 35 | 1.2000 | |
| During | <65 | 21 | 2.1429 | 0.521 |
| | >64 | 35 | 1.7714 | |

UP.372, Table 3.

| | BPH | N | Mean | p |
|--------|--------|----|--------|-------|
| Entry | BPH | 21 | 1.1429 | 0.573 |
| | No BPH | 33 | 1.3939 | |
| During | BPH | 21 | 1.5714 | 0.251 |
| | No BPH | 33 | 2.2424 | |

UP.372, Table 4.

| | | Entry | Cystoscopy count |
|--------|---------------------|---------|------------------|
| Entry | Pearson Correlation | 1 | -0.308* |
| | Sig. (2-tailed) | | 0.021 |
| | N | 56 | 56 |
| During | Pearson Correlation | -0.308* | 1 |
| | Sig. (2-tailed) | 0.021 | |
| | N | 56 | 56 |

foreign body granuloma includes complete removal of the involved tissue and repair of the denuded penis. We tried a new technique comprised of modified bilateral scrotal flaps to provide reliable and stable coverage in such cases.

Materials and Methods: Eighty eight patients with penile foreign body granuloma underwent reconstructive surgery by authors from November 2001 to December 2012. Most of them showed severe deformity from corona of penis to penoscrotal junction due to foreign-body granuloma. Necrosis and ulceration of penile skin were seen in 18 patients. Foreign-body granuloma partly invaded the scrotum in 7 and the infrapubic area in 20 patients. The average age of the patients was 36 years. Complete removal of involved skin and subcutaneous tissue was performed under spinal anesthesia. After the preoperative design, flap elevation started with a midscrotal incision. The scrotal skin flap, including Dartos fascia, was elevated from the underlying tunica vaginalis using a blunt finger dissection. Finally, the inferior sides of flaps were incised and the bilateral scrotal flaps were completely elevated. The upper angles of each side of scrotal flaps were sutured together and fixed at middorsal portion of the corona. The lower angles of flaps were also sutured at the frenulum of penis. Two large Z-plasties were inserted into the dorsal and ventral suture lines. After the completion of penile resurfacing, the remaining scrotal skin was advanced forward and sutured.

Results: All the flaps survived completely. Delayed wound healing was seen in 14 patients and the wound were healed with conventional treatments, except in 6 patients who underwent surgical intervention. Sixteen patients complained of decreased scrotal size. Eight patients showed mild scar contracture at the penoscrotal junction. The part of the scrotal hair-bearing area was moved to the penile shaft. After 6-month recovery period, satisfactory sexual activity was possible for all patients.

Conclusion: In our experience, penile resurfacing with modified bilateral scrotal flaps is an effective and reliable method for repair of completely denuded penis.

UP.374

Changes in Haemodynamics in Testicular Artery after Varicocelectomy: A Long-Term Follow-Up

Shimpi R

Div. of Urology, Uro-Andrology Clinic, Pune, India

Introduction and Objectives: Varicocele is an abnormal dilatation and tortuosity of the Pampiniform plexus of veins and can cause detrimental effects on Spermatogenesis in the reproductive age and can reduce the size of the testes.

Materials and Methods: Sixty patients in the age group of 22-30 (mean 27 years) treated

between 2006 and 2010 are randomized in two groups. Group A (n=45) had Grade II-III varicocele with strain pattern seen on spermatogram and the size of the testicle (left side) was smaller by a mean of 2.4 ml than the right side. All these patients underwent microsurgical varicocelectomy on both the sides. The control Group B also had varicocele Grade II-III with strain pattern seen on the spermatogram. All the patients of Groups A and B underwent Doppler study for the measurement of PSV, EDV and RI for the Capsular and Centripetal Arteries. The Colour Doppler of the arterial flow and measurement of the size of the testicle was repeated at 3, 6, 9, 18 months.

Results: At the time of surgery in Group A, the RI of the Capsular Artery was 0.62 ± 0.03 and that of Centripetal Artery was 0.58 ± 0.03 . At 1 month, RI of Capsular Artery was 0.66 ± 0.04 while that of the Centripetal Artery was 0.63 ± 0.03 , whereas there were minimum changes in the RI of the Capsular and Centripetal Arteries of Group B.

Conclusions: Because of venous hypertension in the Pampiniform plexus, there is a significant drop in testicular arterial perfusion. The Operative Treatment significantly improves the testicular arterial flow, and hence, possibly improves the spermatogenesis. The RI in the Centripetal Artery is the main haemodynamic indicator that correlates with the improvement in the sperm quality.

UP.375

Intratubular Germ Cell Neoplasia in Postpubertal Cryptorchid Testis

Jung J¹, Eom M², Ryang S¹, Kang T¹, Song J¹, Chung H¹, Kim K¹, Chae Y³

¹Dept. of Urology, Yonsei University Wonju College of Medicine, Wonju, South Korea; ²Dept. of Pathology, Yonsei University Wonju College of Medicine, Wonju, South Korea; ³Dept. of Urology, Cheongju St. Mary's Hospital, Cheongju, South Korea

Introduction and Objectives: It is well known that testicular germ cell tumors arise with increased frequency in patients with cryptorchidism. Skakkebaek reported that intratubular germ cell neoplasia (ITGCN) is a

precursor lesion to testicular germ cell tumor. Approximately 50% of patients with ITGCN will develop an invasive of testicular germ cell tumors within 5 years. Therefore, we evaluated that the incidence of ITGCN in postpubertal cryptorchidism.

Materials and Methods: Between January 2002 and August 2012, orchiectomy specimens from 34 postpubertal patients (aged 12 or over) with cryptorchid testis were reviewed. The specimens were evaluated for ITGCN using immunohistochemical stains of placental-like alkaline phosphatase and Oct 3/4, since it is hard to recognize ITGCN with routine H&E stain. Additionally, the degree of spermatogenesis was assessed using the Johnson's criteria.

Results: Mean age was 35 years (range 17 to 74) at surgery. All patients were diagnosed as unilateral inguinal cryptorchidism. After counseling the cancer risk and fertility potential of the cryptorchid testis, we performed the preventive orchiectomy. One patient (2.9%) of 20 years old had ITGCN in surgical specimen with all positive markers (Figure 1). Histological assessment of spermatogenesis showed that mean Johnson score was 3.38 (range 1 to 9).

Conclusion: Considering the risk of malignancy and low spermatogenesis, we should perform immunohistochemical stains and discuss preventative orchiectomy for the postpubertal cryptorchidism.

UP.376

Short-Term Results of Permanent Uvula Urethral Stent in the Treatment of Recurrent Bulbar Urethral Strictures

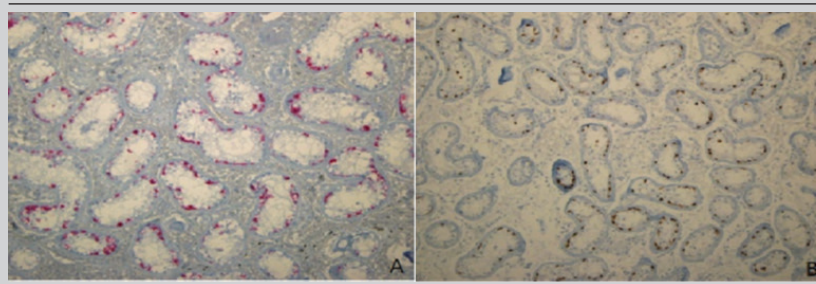
Cho D, Park M, Yeo J

Seoul Paik Hospital, Inje University, Seoul, South Korea

Introduction and Objectives: To evaluate the outcomes of permanent Uvula urethral stent in the treatment of recurrent bulbar urethral stricture.

Materials and Methods: Seven patients who underwent permanent Uvula urethral stent implantation due to recurrent bulbar urethral stricture following previous unsuccessful surgical procedure from 2010 to 2013 were included in the study.

UP.375, Figure 1. The germ cells are positive with immunohistochemical staining of PLAP (A) and Oct 3/4 (B)



Results: The overall success rate was 85.7% at the end of the 6 months. There was discomfort in implantation area in two patients about 1 month following the procedure. These patients were treated with alpha-blocker and anti-inflammatory drugs. Stone formation was not observed at the urethral stent implantation area. Post-void dripping has been observed in one patient up to the postoperative 3rd month. Partial stent migration was observed in one patient. None of the patients experienced pain during erection.

Conclusion: Uventa urethral stent is a minimal invasive surgical procedure which can be safely and effectively used in patients with recurrent urethral stricture.

UP377

Nesbitt's Procedure for Penile Curvature: An 8-Year Experience at a Single Institution

Abusanad O¹, Omorphos S², Subramanian K³

¹St Helens & Knowsley NHS Trust, St-Helens, UK;

²St-James University Hospital, Leeds, UK;

³Pinderfields General Hospital, Wakefield, UK

Introduction and Objectives: Retrospective evaluation of our results after surgical reconstruction with the Nesbitt's procedure, for congenital or acquired penile deviation, with regard to improvement in: (a) penile pain, (b) penile curvature, (c) sex life postoperatively. **Materials and Methods:** Thirty six patients with stable disease for more than 1 year and persistent sexually disabling penile curvature of more than 30° underwent Nesbitt's procedure between February 2004 and January 2012 in our institution. Aetiology of penile deviation, preoperative clinical findings, surgical outcomes following straightening the penis and patient satisfaction were evaluated. Follow-up included clinical examination, including self-photography on erection (in some cases) and clinical assessment of erectile dysfunction. Mean follow-up period was 6 months following the operation (3-16 months).

Results: Thirty five patients had Peyronie's disease and 1 patient's curvature was congenital. Mean age was 55 years (25-72 years). Preoperative mean angulation of the penis was 45°. Overall, 31 patients were completely satisfied with the surgical correction, 4 patients were partly satisfied and 1 patient reported no satisfaction because of subsequent development of 10° lateral curvature on the contralateral side postoperatively. One patient developed wound infection but otherwise there were no major complications. In the follow-up period all patients were able to achieve rigid erection and penetration, but 4 elderly patients required PDE5 inhibitors. Only 1 patient complained of mild penile pain on erection postoperatively but was able to resume his sex-life.

Conclusion: The Nesbitt's technique is associated with low morbidity and can provide

satisfactory results for mild and moderate penile curvature. Careful patient selection has a major impact on the outcome.

UP378

A Comparison of Surgical Approaches for the Nesbit Procedure

Younis A, Dorkin T

Newcastle Urology, The Freeman Hospital, Newcastle upon Tyne, UK

Introduction and Objectives: Many studies have examined various surgical techniques to manage Peyronies disease (PD) with the Nesbit procedure being the most common option. Surgical access can be achieved either by circumcision and degloving or by a ventral midline incision (VMI). However, there is a paucity of data to favour one over another. In this case series, we aim to evaluate post-operative complications and patient satisfaction rates following Nesbit procedure for PD and to assess whether there is a difference in outcome between VMI and circumcision for surgical approach.

Materials and Methods: A retrospective review of notes of patients with PD who had a Nesbit procedure was performed. Patients were identified from a log of procedures performed within the department. Data was collected from electronic records and/or case notes.

Results: A total of 133 patients underwent surgery for PD between March 2006 and August 2013. Patients excluded were those who had plaque excision or if notes were not retrievable. The data for 110 patients was collected. The median age of patients was 56 (range 21-73) with a median preoperative angle of penile curvature of 70 degrees (range 20-120); the majority had dorsal curvature. A VMI was employed in 87 patients (79%) and 20 were circumcised (18%), 6 of whom were previously circumcised. Seventy five percent of those with VMIs were discharged the same day compared to 55% of the circumcised patients ($p = 0.095$). In the VMI group, 3 patients (3.4%) had post-operative wound infections and 6 (7%) developed phimosis, requiring circumcision. None within the circumcision group had a wound infection; however, pain and penile distortion was reported in 2 patients. The subjective satisfaction rates in the 2 groups were similar (75% circumcision vs. 68% VMI; $p = 0.595$).

Conclusion: VMI and circumcision are both valid surgical approaches for a Nesbit procedure. The results will help inform patient counselling about both approaches, particularly for men keen to preserve their prepuce. Patients must be made aware there is a minor risk of later circumcision if VMI is selected.

UP379

Histological and Microbiological Characterization of Idiopathic Bulbar Urethral Strictures

Kogan M, Mitusov V, Naboka J, Pasechnik D, Belousov I, Naranov S

Rostov State Medical University, Rostov-on-Don, Russia

Introduction and Objectives: The etiology of idiopathic urethral stricture (IUS) is currently unclear. Our aim was to characterize histological and microbiological make up of IUS tissues.

Materials and Methods: Twelve patients were identified with idiopathic stricture disease and no prior manipulation. Patients age range from 21-40 years and disease duration was > 5 years in all. Among all, 66.7% of patients had stricture < 1cm, remaining 33.3% of patients had stricture of 1-2 cm in length. All patients underwent an "end to end" anastomotic repair with excision of the strictured segment. Histologic evaluation was done with H&E and picrofuchsin by Van Gieson stains.

Bacteriological examination of urethral tissue was performed on an extended set of culture media for aerobic and anaerobic bacteria.

Results: The spongy body of the urethra demonstrated squamous metaplasia of the urothelium with weak keratinization in all cases. Additionally, the IUS zone showed signs of chronic inflammation with localized inflammatory infiltrate composed of lymphocytes, plasma cells, histiocytes and occasional neutrophils, mainly around the blood vessels. The development of small-cell coarse fiber connective tissue with focal microvascular proliferation was suggested as well. This process also extended into the periurethral tissue. The number of arterial and venous vessels in the urethral bulb was significantly reduced compared to the normal tissue. Only 8.3% of the samples showed no bacterial growth. *Peptostreptococcus* sp were isolated in 33.3% of the cases. Remaining 58.3% of the cases grew the following organisms *Staphylococcus* sp., *Enterococcus* sp., *Propionibacterium* sp., *Peptostreptococcus* sp., *Bacteroides* sp.

Conclusion: In all cases, bulbar ISU was characterized by morphological signs of chronic inflammation, despite the absence of a history of inflammatory causative factors. In majority of the cases presence of aerobic or anaerobic organisms was identified. The role of bacterial presence in the development of the inflammation of the urethra requires further study. Coarse-fibered connective tissue develops not only in the lamina propria and urethral spongiosum, but also in the adjacent periurethral tissues. Given these findings, it is reasonable to propose that some strictures could be inflammatory and reactive in nature.

UP380**Buccal Mucosa Graft Urethroplasty for Panurethral Disease Repair**

Acimovic M^{1,2}, Radovanovic M¹, Milosavljevic M³, Rafailovic D¹, Pejic T¹, Dzamic Z^{1,2}, Hadzi-Djokic J^{2,4}

¹Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia; ²School of Medicine, University of Belgrade, Belgrade, Serbia; ³Dept. of Urology, University Children's Hospital, Belgrade, Serbia; ⁴Serbian Academy of Sciences and Arts, Belgrade, Serbia

Introduction and Objectives: Panurethral disease (PUD) involving the penile and bulbar urethra, represents increasingly common urological problem. Our objectives are to estimate the principal causes of PUD and report the medium-term results of PUD repair using the buccal mucosa grafts (BMG).

Materials and Methods: Between January 2009 and June 2013, a BMG repair was used in 37 patients with pendular and bulbar strictures, with overall length >8cm. The average patients age was 46±7.56 years (range 21-64). All patients underwent abdominal ultrasonography, the measurement of the postvoid residual urine (PVR), uroflowmetry, retrograde urethrography, voiding cystourethrography and urethrosocopy pre and postoperatively. The average length of urethral strictures was 11.2±0.9cm (range 8.1-17.5). A successful outcome was defined as normal voiding (Qmax >18ml/s) with no stricture on the voiding cystourethrogram and no need for subsequent instrumentation. 26 underwent one-stage surgery, 11 patients underwent two-stage surgery. In 32 patients buccal mucosa onlay graft technique was used, in 5 patients, inlay-onlay sandwich technique. The mean follow-up was 22.3±3.6 months (range: 4-36).

Results: The most common causes of the PUD were balanitis xerotica obliterans (BXO) in 21 cases (56.7%), trauma in 10 cases (27%), urethral infection and idiopathic causes in 6 cases (16.3%). The average operative time was 143±14.4 minutes. The procedure was successful in 28 patients (75.67%), while 9 patients (24.33%) developed recurrent stenosis. Five patients were candidates for repeated urethral dilatations, while four patients underwent urethrotomy. Seventeen patients underwent one-stage surgery for the PUD caused by BXO with success of 94%. Four patients with BXO underwent two-stage surgery with success of 25%. The mean maximum flow rate increased from 6.5±2.5mL/s to 19±6mL/s, postoperatively. The mean postoperative PVR decreased from 58.7±39.7mL to 41±23mL. There were no patients with erectile dysfunction or urinary incontinence after the procedure.

Conclusion: Our results show that in patients with panurethral strictures, whose overall length exceeds more than 8cm in total, urethroplasty

using BMG is feasible, with very encouraging medium-term results. This type of reconstruction could be considered as the standard of care for both pendular and bulbar strictures >8cm in total.

UP381**Defining Failure of Erectile Dysfunction Therapy in Primary Care?**

Jones C, Fraser M

Glasgow Royal Infirmary, Glasgow, Scotland, UK

Introduction and Objectives: Recent consensus statements and guidelines highlight the importance of cardiovascular risk assessment in men presenting with ED, and place the primary role of management of this condition with general practitioners. Following recent redesign of local referral pathways in male sexual dysfunction we aimed to define the extent to which published guidance is reflected in the management of ED locally and in the referral pattern of men deemed to have failed initial therapy in primary care.

Materials and Methods: We reviewed the records of patients (total=75 men; mean age 54.6 years) referred as "failed initial therapy" to our service in 2013. The following characteristics were analysed: Co-morbid conditions (patients post-radical prostatectomy excluded), Individual PDE5 inhibitor regimens, Adherence to guidelines in terms of investigations/assessment undertaken, Evidence of lifestyle modifications.

Results: In this treatment failure group, 46 men (61%) were diabetic with a significantly higher burden of cardiovascular morbidities compared to the non-diabetic patients. Less than half (48%) had documented lifestyle advice given but blood glucose and lipids were universally checked. A total of 26 men (35%) had serum testosterone checked pre-referral. In this series, 22% had biochemical hypogonadism. PDE5 inhibitors were unsurprisingly widely used as primary treatment, with 95% exposed to treatment; 65% having had an unsatisfactory outcome with their first PDE5 subsequently were treated with an alternative. 15% of men had no upward dose titration. Sildenafil was the first choice PDE5 inhibitor in 90% of cases, and all except one patient received on demand treatment. No patients had non-oral therapies instituted in primary care.

Conclusion: Our treatment failure population exhibits a high proportion of diabetic men with co-morbid cardiovascular conditions and a significant number with low testosterone. Such patients are at high risk of PDE5 non-response. In general terms drug treatment of ED is well managed in primary care with choice of agent and dose scheduling broadly meeting available guidance. Further reinforcement and education is necessary to ensure more complete cardiovascular risk stratification and lifestyle modification pre-referral.

UP382**Prostate Cancer (PC): Management of 669 Consecutive Cases in Black Ghanaians**

Yeboah E^{1,2}, Hsing A³, Biritwum R⁴, Tettey Y², Mante S⁶, Mensah J⁷, Kyei M⁷, Yarney J⁸, Vanderpuye V⁸, Beecham K⁸, Asante K¹, Ampadu K¹, Adusei B¹, Gepi-Attee S¹, Klufio G¹, Lamptey E¹, Owoo C¹

¹Dept. of Surgery, University of Ghana Medical School and Korle Bu Teaching Hospital, Accra, Ghana; ²Nyaho Medical Centre, Accra, Ghana; ³Cancer Prevention Institute of California, CPIC, Fremont, USA; ⁴Dept. of Community Health, University of Ghana Medical School, Accra, Ghana; ⁵Dept. of Pathology, University of Ghana Medical School, Accra, Ghana; ⁶37 Military Hospital, Accra, Ghana; ⁷Dept. of Surgery, Korle Bu Teaching Hospital, Accra, Ghana; ⁸Dept. of Radio-Oncology, Korle Bu Teaching Hospital, Accra, Ghana

Introduction and Objectives: Study clinical incidence, risk factors of PC, TNM staged their management outcomes.

Materials and Methods: Study of PC managed in Accra 2004–2011. Diagnosis by history, tPSA abnormal DRE histologically confirmed Gleason Scored (GS), TNM staged and managed (Rx) as follows, organ confined Radical prostatectomy (RP), brachytherapy (BRCHY), external beam radiotherapy (EBRT), hormonal/chemotherapy (HCh) or surveillance. T3–4 M0 by HCh ± BRCHY/EBRT. Metastatic T1–4 M1 Rx HCh. Analysis social sciences package.

Results: A total of 669 cases, median age 70 years, median GS ≥7. Organ confined 415(62%), T3–T4 M0 167 (25%), Metastatic cases 87 (13%). Follow-up 1-7 years, median 18 months.

A. ORGAN CONFINED n= 415 –

Asymptomatic 80% management:

RP n =92. Median GS ≥7 Prior median (PM) PSA 16.1ng/ml, post (PSM) PSA 0.23ng/ml. Mortality 2%, Complications 3–22%.

BRACHYTHERAPY n = 70. PM PSA 14.6ng/ml, PSM PSA 0.59ng/ml, Mortality 1.4%, Complications 3–10%

EBRT n=155. PM PSA 15.7ng/ml, PSM PSA 0.54 ng/ml. Mortality 3%, Complications 2–6%

HCh n= 98. PM PSA 13.8ng/ml, PSM PSA 0.59ng/ml. LHRH 41%, stilboestrol 29%, BTO 30%. Mortality 3%, Complications 2 – 10%

Surveillance GS ≤6 PM PSA <8ng/ml 20 all converted to BRACHY/EBRT (11), HCh (9).

B. T3–4 M0 n=167 (T3 100, T4 67). PM PSA 48.5ng PSM 0.6ng/ml GS ≥7, symptomatic 90%.

Rx All neoadjuvant HCh, LHRH 52%, Stilboestrol 12%, BTO 36% then by Brachytherapy T3 n=3, PM PSA 14.6ng/ml PSM 0.11ng/ml. Death 1

EBRT n=64, T3 (34%) PM PSA 32.4ng/ml, T4 (2%) PM 64.6ng/ml PSM PSA T3 0.6ng/ml, T4 0.4ng/ml. Deaths 2%, Complications 2-10%

HCh n=103 (T3 24%, T4 38%), LHRH 28%, Stilboestrol 4%, BTO 30%, mortality 26%

C. **METASTATIC** n=87, 13% PM PSA 93ng/ml PSM PSA 0.4ng/ml. Rx LHRH 23%, Stilboestrol 17%, BTO 60%, mortality 37%. Complications 7 – 30%

Conclusions: Prior to 2004 15.3% PC organ confined, T3/T4 32% and metastatic 52%. Improved facilities and skilled teams since 2004 led to organ confined PC 62% curable by RP, brachytherapy or EBRT with longer survival advanced disease pose challenges. Risk factors ↑BMI, chromosome 10p14 with PC, 5q31.3 with aggressiveness GS≥7 and Xq28 and 6q21 with low grade GS≤6.

UP383

Clinicopathologic Features and Risk Stratification of Concomitant Prostate Cancer Found in Specimens Removed by Radical Cystoprostatectomy: A Prospective Study Using Mapping Technique of Prostate Specimen

Chung J¹, KIM S¹, Seo H¹, Joung J¹, Lee K¹, Park W²

¹Dept. of Urology, National Cancer Center, Goyang, Kyonggi, South Korea; ²Dept. of Pathology, Prostate Cancer, National Cancer Center, Goyang, Gyeonggi, South Korea

Introduction and Objectives: To describe the prevalence of incidental prostate cancer (IPC) and to quantify its risk stratification in association with other clinicopathologic features in patients undergoing radical cystoprostatectomy (CPT) for malignancy.

Materials and Methods: Consecutive 97 male patients scheduled to undergo CPT were prospectively enrolled. The CPT specimens were examined after mapping prostate specimens, where complete transverse sections of the prostate were taken from the apex to the base at 2-3 mm intervals.

Results: Of the 97 CPT patients, 83 (85.5%) had primary bladder cancer, 12 (12.4%) colorectal cancer, and two (2.1%) penile cancer. A total of 39 (40.2%) patients had concomitant ICP. Most of the IPCs (89.7%) were confined to the prostate, except for three (7.7%) cases of extracapsular extension and one (2.7%) of seminal vesicle invasion. Median tumor volume was 0.6 cm³. Of these IPCs, 23 (59.0%) cases were clinically significant prostate cancer (CSPC). Among the 76 (81.7%) patients having pre-operative PSA, PSA of five stratified categories showed significant correlation with increased incidence of CSPC (RR 0.313, p=0.015). Thirty four (44.7%) patients with PSA<4.0ng/mL had PC, including 11 (14.5%) CSPC and

the other 42 (55.3%) with PSA≥4ng/mL, PC was diagnosed in 18 (42.9%) patients, including eight (19.0%) CSPC. Those 83 patients with bladder cancer with IPC had significantly higher age (68.9 vs. 61.6 years) and PSA level (3.9 vs. 1.13) than those with non-IPC.

Conclusions: IPC was a common finding in CPT and 59.0% of IPC was clinically significant. In addition, PSA still appeared to be a useful screening tool for detection of PC.

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Brachytherapy after TURP: Oncological Outcomes and Functional Urinary Results
Busto Martin L¹, Rodríguez Gómez I¹, Álvarez Castelo L¹, Mariño A², Busto Castañón L¹, Gómez Veiga F¹

¹Dept. of Urology, Complejo Hospitalario de A Coruña, A Coruña, Spain; ²Dept. of Radiotherapy, Centro Oncológico Gallego, A Coruña, Spain

Introduction and Objectives: Brachytherapy is a well-known alternative to treat low-risk patients. The role of low dose brachytherapy (LDB) after TURP is on debate. Changes in the morphology of the gland compromise the target, dose prescribed and the impact in the urinary function. The aim of this study is to analyze oncological and urinary results in a group of patients treated with LDB after TURP.
Materials and Methods: From January 2001 to April 2011, 1631 patients with PCa were treated with LDQ. PCa patients who had a TURP performed before LDB were included. Real time technique was used with a dose prescription of 145Gy. Patients were asked in a personal interview about their continence status. After 2 years of follow-up, an ICIQ-SF was performed by phone interview to evaluate any continence. Descriptive analysis and Mann-Whitney U test was performed with SPSSv20.

Results: Twenty nine patients were suitable for analysis. Mean follow-up was 55 months, mean age was 67.2 years and mean prostate volume 39.5cc. Twelve (38%) were low and 17 (58%) intermediate risk. Twenty six patients (89.7%) were free of biochemical recurrence and 3 (10.3%) had recurrence. Four patients related any kind of stress incontinence (3 grade 3, and

1 grade according to the RTOG classification). Twenty four patients fulfilled the ICIQ-SF. Mean ICIQ-SF score was 5 (scale from 0 to 21): 11 (47.8%) patients score was 0 and were totally dry. Twelve (52.2%) had any kind of leakage in the RTOG category grade for incontinence: 5 patients had grade 1, 1 had grade 2, and 4 had grade 3 (continuous). The percentage of prostate resected in the TURP (grams obtained in TURP/total prostate) was 17% in the continent group and 36% in the incontinent group (p=0.15).

Conclusions: In patients with previous TURP and low-intermediate risk PCa, LDB has adequate oncological results. Good levels of continence can be achieved, although some factors as percentage of the prostate resected during TURP should be taken in consideration. Prospective studies are needed to define the role of TURP and LDB, complications and risk factors, to minimize them.

UP385

Results of Patient Feedback Questionnaire following Transperineal Template Guided Saturation Biopsy (TTSB) without Prophylactic Catheterisation

Sarkar D, Bass E, Parry M, Parr N

Wirral University Teaching Hospital, Upton, UK

Introduction and Objectives: TTSB is increasingly utilised in the diagnosis and characterisation of prostate cancer. However, there is little data on patient experience of this procedure. We offered a questionnaire to 500 consecutive patients from July 2007 to January 2014 and now analyse the responses.

Materials and Methods: The mean age for the cohort was 64 years (range 43-82). A mean of 28 biopsy cores (range 13-43) were taken under general anaesthesia (GA), as day case procedure. Patients received diclofenac 100mg suppository on completion of the procedure. The questionnaire explored symptoms at 1hr, 1, 3 and 7 days post operatively.

Results: There were 261 responses (52%), with outcomes shown in the Table 1. Twenty (7.7%) with voiding difficulty required catheterisation. Several patients commented that the procedure was more tolerable than their previous conventional biopsy.

UP385, Table 1.

| Post TTSB | 1 hour | 1 day | 3 days | 7 days |
|------------------------|--------|-------|--------|--------|
| Bleeding PR (%) | 38 | 28 | 12 | 3 |
| Haematuria (%) | 80 | 63 | 48 | 27 |
| Haematospermia (%) | - | 9 | 18 | 38 |
| Voiding difficulty (%) | 9 | 11 | 7 | 5 |
| Pain (%) | 45 | 47 | 37 | 23 |
| Grade 0-100 (median) | 20 | 20 | 15 | 10 |
| Analgesia required (%) | 19 | 21 | 11 | 5 |

Conclusion: TTSTB under GA without prophylactic catheterisation is well tolerated, carrying acceptable postoperative symptom rates. Interestingly, a significant proportion of patients ejaculate within 7 days, which again suggests good tolerance to the procedure. Patients should be supplied this data preoperatively when considering TTSTB.

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Association between Androgen Deprivation Therapy and Incidence of Hot Flashes among Males with Prostate Cancer

Masuda H, Sugiura M, Hou K, Araki K, Kojima S, Naya Y

Dept. of Urology, Teikyo University Chiba Medical Center, Ichihara, Japan

Introduction and Objectives: Androgen deprivation therapy (ADT) for prostate cancer was the one of effective therapy. Affecting up to 80% of men on ADT, one of the most bothersome side effects is hot flashes (HF). Immediate sweating, flushing and palpitation were concerned the reduce of quality of life (QOL), the treatment couldn't continue and had no choice but to stop. However, HF with treatment were reported the side effect that decreased the QOL. We evaluated the incidence of HF and the association between HF and clinical factors of prostate cancer patients receiving ADT. **Materials and Methods:** We performed retrospective analysis of 121 patients who were diagnosed prostate cancer by prostate needle biopsy and had taken ADT for at least six months between January 2009 and July 2013. The incidence of HF was elucidated by the questionnaire of outpatient doctor and electronic clinical records. We didn't adopt hot flashes score. Univariate and multivariate logistic analyses were carried out to identify clinical covariates significantly associated with the incidence of HF.

Results: The overall incidence of HF was 45% (54/121). The mean age was 70.4±0.7 years old with HF and 74.4±0.9 without HF, respectively (P=0.0005). The mean pretreatment hemoglobin was 14.5±0.2g/dl with HF and 13.7±0.2g/dl without HF, respectively (P=0.0135). There was not statistical significant difference in the incidence of HF for each treatment. The interruption of the ADT by HF was not accepted. Multivariate analysis indicated that age was an independent risk factor for the incidence of HF (odds ratio [OR] 0.89, P=0.0082).

Conclusions: Our results suggest that HF tends to appear to younger patients with prostate cancer. Therefore, when the treatment of ADT begins for younger patients with prostate cancer, it is necessary to inform the incidence of HF previously. For younger patients with prostate cancer, the continuation of ADT was very important. So if ADT was discontinued, we should try the various treatments immediately.

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Impact of Guideline Implementation on Prostate Cancer Screening and Treatment among Men Ages 75 Years and Older

Wallner L¹, Schottinger J², Palmer-Toy D³, Kanter M², Loo R⁴, Hsu J⁵, Jacobsen S⁵

¹University of Michigan, Ann Arbor, USA;

²Southern California Permanente Medical Group, Pasadena, USA; ³Southern California Permanente Medical Group, North Hollywood, USA; ⁴Southern California Permanente Medical Group, Downey, USA; ⁵Kaiser Permanente Southern California, Pasadena, USA

Introduction and Objectives: Concern about the potential over-treatment of older men prompted the US Preventive Services Task Force to recommend against screening men over the age of 75 with serum prostate-specific antigen (PSA) levels in 2008. We sought to examine the impact of implementing this guideline in a large integrated care organization.

Materials and Methods: A cohort of all 1,325,232 men ages 40 years and older with no history of prostate cancer who were enrolled in the Kaiser Permanente Southern California health plan from January 1, 2000, through December 31, 2012, was passively followed for the use of serum PSA screening tests, prostate biopsies and prostate cancer treatments through electronic health records. The proportion of men having a serum PSA test was estimated considering men eligible for screening once per year. The rates of prostate biopsy, prostate cancer diagnosis and prostate cancer treatment were estimated as a function of this same population, overall and stratified by age group.

Results: Overall, serum PSA screening rates decreased gradually over time among all age groups beginning in 2009. There was a sharp decline seen among men ages 75 years and older beginning in 2008, from 36% to 15%. The rate of elevated serum PSA levels remained constant for men younger than 75 years of age whereas the proportion among those ages 75 years and older dropped from 7.5% to 4%. Biopsy rates demonstrated modest declines among younger men but decreased from about 8/1000 to 3.7/1000 among older men. Among those with an elevated serum PSA level, however, the biopsy rates remained fairly similar across all age groups. Radical prostatectomy rates and radiation therapy rates demonstrated similar declines among men ages 75 years and older whereas younger men exhibited fairly consistent rates.

Conclusion: These data suggest that while rates of prostate cancer treatments remained highest among men in older age groups, there was a decline in utilization subsequent to the decreased testing rates. These data demonstrate that in an integrated care organization, a comprehensive approach to implementing guidelines can result in targeted decreases in over-treatment.

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Evaluation of the QOL in the Prostate Cancer Patients Advocacy Group

Honda S¹, Kishi H², Mizumoto K¹, Yamagata S¹, Noso Y¹, Ishibashi Y³, Ogawa K³, Nagami T³, Anjiki H³, Koike C³, Arichi N³, Nakamura S³, Mitsui Y³, Hiraoka T³, Sumura M³, Yasumoto H³, Shiina H³

¹Ohda General Medicine Education Center, Shimane University, Ohda, Japan; ²Ohda Municipal Hospital, Ohda, Japan; ³Simane University, Izumo, Japan

Introduction and Objectives: The prostate cancer patients advocacy group in our department was established in 2003 for patients that undergone radical prostatectomy. Annual activities were a general meeting, a party, a lecture and the publication of the bulletin and so on, those were administered by officers and supported by various medicines. We evaluated quality of life (QOL) between members for a longitudinal approach.

Materials and Methods: We evaluated QOL using SF-36 for 34 patients that participated in both a general meeting and a party of 2010 and 21 who were non-participation, of patients that undergone radical prostatectomy between 1999 and 2007. In addition, we compared QOL between in postoperative the second year and the fourth year.

Results: In postoperative the second year, Role physical (RP), Role emotional (RE) and Mental health (MH) was improved in a participation group as compared with non-participation. In postoperative the fourth year, Physical functioning (PF), Social functioning (SF) and General health (GH) in addition to RP, RE and MH was improved in a participation group. But, there was the significant difference neither. By the longitudinal comparison, MH was significantly improved in a participation group by the fourth year from postoperative the second year. And also, PF, RP, SF and RE showed an improvement tendency in a participation group by the fourth year.

Conclusions: The advocacy group of these patients participation type was useful in preserving the good relation of the patients and the medical person, and constructing the network between the patients. Furthermore, it was suggested that the participation of the group activity led to improvement of the QOL.

UP389

Treatment Outcomes following Combination Radiotherapy and Androgen Deprivation Therapy for the Treatment of Localized and Locally Advanced Prostate Cancer

Kim B, Jung W, Ha J, Kim C, Park C
Keimyung University, Daegu, South Korea

Introduction and Objectives: We investigated the efficacy of patients with localized and locally advanced prostate cancer treated with

combination of androgen deprivation therapy (ADT) and external beam radiotherapy.

Materials and Methods: A total of 61 men with T1-2 prostate cancer (31 men) and T3-4 prostate cancer (30 men) were treated with ADT and radiotherapy (72Gy) from January 2003 to January 2012. ADT was started before 1-2 months from the start of radiation and conducted during 6-24 months using combination with LHRH agonist and non-steroidal antiandrogens. Patients' age, Gleason sum, PSA, prostate volume, recurrence, progress to castration resistance prostate cancer (CRPC), survival were analyzed. Biochemical recurrence (BCR) was defined as two consecutive rising of PSA at intervals of 3 months.

Results: The patients' mean age was 71 years and their mean follow-up period was 53.1 months (range, 10-138 months). Median pretreatment PSA was 14.875ng/mL (range, 4.85-187.2ng/mL), mean prostate volume was 37.2cc (range, 21-88cc). The number of patients in the Gleason sum 6-7, 8-9, and 10 were 27 (44.3%), 32 (52.4%) and 2 (3.3%), respectively. The mean PSA nadir level was 0.09ng/mL (range, 0.03-0.77ng/mL) and take mean 2.7 months. Eight patients (13.1%) were recurred at mean 33.6 months. Of the localized prostate cancer patients, BCR and local recurrence confirmed by MRI was 2 and 1, respectively. Of the locally advanced prostate patients, BCR and bone metastasis was 4 and 1, respectively. In recurred patients, the ADT was repeated, but in 2 cases, the disease progressed to CRPC. The 2 patients had received chemotherapy with docetaxel and mitoxantrone, but 1 patient died from cancer after 80 months after radiotherapy. There were several complications of radiation, diarrhea (9; 14.8%) radiation proctitis (7; 11.5%), perineal discomfort (4; 6.6%), frequency (4; 6.6%), dysuria (2; 3.3%), constipation (2; 3.3%), itching sensation (2; 3.3%), voiding difficulty (1; 1.6%). All patients could undergo radiotherapy except one patient who complained about severe proctitis.

Conclusion: In patients treated with combination of ADT and radiotherapy for localized or locally advanced prostate cancer, generally good responses were observed in recurrence and morbidity. No severe complication was observed and more patients and follow-up are required for further conclusions.

UP391

Anxiety, Quality of Life, Advance Directives of Late-Stage Prostate Cancer Patients

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: Anxiety can worsen prostate cancer patients' decision making and quality of life. Early identification of anxiety disorders is thus very important for

excellent prostate cancer treatment. This study aimed to determine the levels of anxiety in patients with advanced-stage prostate cancer and to test the feasibility, acceptability and safety of advance care planning intervention, Advance Care Planning for male patients with advanced-stage prostate cancer.

Materials and Methods: This study was performed at the department of urology, our hospital from 2008 to 2014. The subjects were advanced-stage prostate cancer patients with bone metastatic lesions proved by bone scan. Comparative analysis was done to analyze anxiety scores assessed by use of an 11-item modified Memorial Anxiety Scale for Prostate Cancer (MAX-PC) questionnaire. We also assessed the relationship of the MAX-PC score with age, prostate-specific antigen (PSA) value, number of bone metastases, and pain. Data were analyzed by using SPSS ver. 17 (SPSS Inc.). Exclusion criteria included severe depression and impaired mental status. Our advance directives (Ads) form include information regarding an individual's desire for services such as cardiopulmonary resuscitation, mechanical ventilation, intravenous fluid administration, tube feeding and analgesia (pain relief).

Results: There were 95 subjects with advanced-stage prostate cancer. We found that the mean anxiety score was significantly lower in the hormone-naïve prostate cancer group (10.61 ± 3.56) than in the castration resistance prostate cancer (CRPC) group (16.61 ± 5.26) ($p=0.001$). Furthermore, there were significant positive correlations between MAX-PC score and PSA value, and number of bone metastatic lesions. However, the correlation between age and anxiety score was not significant. The percentages of patients who had Ads during the final hospitalization for cardiopulmonary resuscitation, mechanical ventilation, intravenous fluid administration, tube feeding, analgesia (pain relief), were 0%, 0%, 39%, 12%, and 100%, respectively. Eighty eight percent of the patients had a do not rescue order.

Conclusions: The MAX-PC anxiety score was significantly elevated in CRPC, high PSA value and multiple bone metastatic lesions.

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Concurrent Use of Sr-89 Chloride with Zoledronic Acid Is Safe and Effective for the Metastatic Castration Resistance Prostate Cancer

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: Our aim in this study was to examine the safety and efficacy of the concurrent use of the radiopharmaceutical strontium-89 (Sr-89) chloride with zoledronic acid in standard anticancer therapy for the metastatic castration resistance prostate cancer.

Materials and Methods: The study comprised 35 metastatic CRPC patients with painful multifocal bone metastases detected by bone scintigraphy, computed tomography or magnetic resonance imaging. All patients were treated with Sr-89 and zoledronic acid concurrently between 2007 and 2014 as part of a standard therapeutic regimen comprising chemotherapy, endocrine therapy and targeted radiotherapy. Sr-89 was administered intravenously at 2 MBq/kg to a maximum of 141 MBq per person. Using PSA as an evaluation criterion of cancer control, patients were divided into PSA responder and non-responder groups, and the survival rates of these groups were compared. Safety was evaluated according to myelotoxicity as measured by the Common Terminology Criteria for Adverse Events (v3.0). To assess treatment efficacy, we monitored changes in analgesic drug dosages. Furthermore, bremsstrahlung imaging after the administration of Sr-89 was utilized to examine the relationship between the accumulation of Sr-89 in metastatic sites and treatment efficacy.

Results: Based on the results, a total of 31 of 35 patients (88%) reported bone pain relief, indicating a high efficacy of Sr-89 combined with zoledronic acid. PSA 'response' occurred in 30 patients over average 4.2 months after Sr-89. In responsive cases, a strong uptake of Sr-89 was observed on bremsstrahlung imaging at the same sites indicated by (99m) Tc bone scintigraphy. Moreover, severe myelosuppression (> grade 3) was not observed, and adverse events were tolerable. Longer survival was expected for the PSA responder group than for the PSA non-responder group.

Conclusion: In conclusion, the use of Sr-89 with zoledronic acid in CRPC with painful bone metastases has the potential to control PSA and prolong survival, was safe and effective when administered concurrently with other standard therapies. In the future, the treatment with Sr-89 at the early stage should be considered, and a large-scale clinical study should be conducted.

UP393

Unusual Presentation of Prostate Cancer: Supraclavicular Lymphadenopathy

Elabbady A, Kotb A
Alexandria University, Alexandria, Egypt

Introduction and Objectives: Prostate cancer is a common health problem, affecting a large group of men during their lifetime. Some authors reported the possibility of prostate cancer spread to left supraclavicular lymph node (L.N.), during the course of non-skeletal metastases. The aim of our work was to report our experience with such rare presentation of prostate cancer.

Materials and Methods: Data collection for patients diagnosed with prostate cancer, in the

past 7 years, in whom supraclavicular lymphadenopathy was one of the main presenting problem of the patients.

Results: We could identify six cases of metastatic prostate cancer with supraclavicular lymph nodes, 2 of them had right supraclavicular L.N. The first case presented to neurosurgery department, with a large right supraclavicular mass, aphasia and right hemi paresis. Three cases presented primarily to general surgery for left supraclavicular lymphadenopathy. The last two cases were known cases of metastatic prostate cancer, on intermittent androgen blockade, developed supraclavicular lymph nodes, during the off-treatment period. One of them developed right supraclavicular LN and the other developed left LN. All the patients had no or minimal lower urinary tract symptoms. All the L.N. decreased significantly in size or disappeared with total androgen blockade.

Conclusion: Prostate cancer should be suspected, in patients presenting primarily with supraclavicular lymphadenopathy, even in the absence of lower urinary symptoms. Serum PSA and DRE should be included in the workup for patients with supraclavicular L.N. especially in cases without an evidence for another primary tumor.

UP.394

Impact of Advanced Second Primary Malignancies on Overall Survival of Patients with Metastatic Prostate Cancer

Koo K¹, Lee D², Ham W¹, Hong C¹, Chung B¹
¹Yonsei University College of Medicine, Seoul, South Korea; ²Pusan National University College of Medicine, Pusan, South Korea

Introduction and Objectives: Determining features that stratify the risk of overall survival (OS) of metastatic prostate cancer (mPCa) is

critical for patient counseling and judicious application of a definitive therapy. Predictive factors associated with OS in patients with mPCa were analyzed.

Materials and Methods: A retrospective analysis was conducted on 539 consecutive mPCa patients diagnosed between May 1998 and August 2011. Patient age, BMI, Eastern Cooperative Oncology Group performance score, Charlson comorbidity index, PSA, T and N stages, Gleason score, American Society of Anesthesiologists (ASA) score, progression to castration-resistant PCa, prior treatments (chemotherapy, radiotherapy, and radical prostatectomy), and the presence of an advanced second primary malignancy (ASPM) at the time of metastasis were analyzed. ASPM was defined as a cytologically or histologically proven advanced-stage solid malignancy ($\geq T3$ or $\geq N1$). The adjusted Kaplan-Meier method was used to estimate OS of patients stratified by the type of ASPM. Cox proportional hazards regression analyses were used to evaluate prognostic factors associated with OS.

Results: A total of 146 (27.1%) patients were noted to have an ASPM; 45 (8.3%) colorectal, 36 (6.7%) lung, 34 (6.3%) stomach, and 31 (5.8%) others. There were 288 deaths observed during the median follow-up of 47.4 months. Compared to patients without an ASPM, those with advanced lung and stomach cancers had significantly lower OS rates (log-rank $p < 0.001$); however, patients with advanced colorectal cancer did not (log-rank $p = 0.384$) (Figure 1). On multivariate analysis, clinical stage $\geq T4$, ASA score ≥ 1 , and the presences of advanced lung and stomach cancers revealed to be independent predictors of a higher risk of all-cause mortality.

Conclusion: A significant proportion of

patients with mPCa present with synchronous ASPM. Definitive therapy targeted at PCa may confer a survival benefit for mPCa patients even with advanced colorectal cancer; however, those with advanced lung and stomach cancer might not.

UP.395

A Meta-Analysis of the Relationship between CXCR4 Expression and Metastasis in Prostate Cancer

Lee J, Jeh S, Kwon J, Jung H, Kang H, Ham W, Choi Y, Hong S, Cho K
 Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objectives: Experimental studies have suggested that the stromal derived factor-1 (SDF-1)/CXCR4 axis is associated with tumor aggressiveness and metastasis in several malignancies. We performed a meta-analysis to elucidate the relationship between CXCR4 expression and the clinicopathological features of prostate cancer.

Materials and Methods: Data were collected from studies comparing Gleason score, T stage, and the presence of metastasis with CXCR4 levels in human prostate cancer samples. Studies were pooled and the odds ratio (OR) of CXCR4 expression for clinical and pathological variables was calculated. Five articles were eligible for the current meta-analysis.

Results: We found no relationship between CXCR4 expression and Gleason score (< 7 vs. ≥ 7). The forest plot using the fixed effect model indicated an odds ratio (OR) of 1.585 [95% confidence interval (CI), 0.793 to 3.171, $P = 0.193$]. Additionally, CXCR4 expression is not associated with T stage ($< T3$ vs. $\geq T3$) and the relevant meta-analysis showed an OR = 1.803 (95% CI, 0.756 to 4.297, $P = 0.183$). However, increased CXCR4 expression was strongly associated with metastatic disease with a fixed-effects pooled OR of 7.459 (95% CI, 2.665 to 20.878, $P < 0.001$).

Conclusion: Our meta-analysis showed that higher CXCR4 protein expression in prostate cancer specimens is significantly associated with the presence of metastatic disease. This supports previous experimental data for a role for the SDF-1/CXCR4 axis in metastasis.

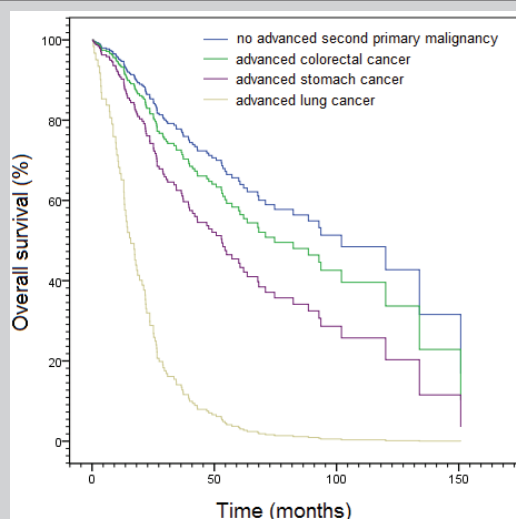
UP.396

Efficacy and Safety of Docetaxel Chemotherapy in Geriatric (≥ 75 Years) Patients with Metastatic Castration-Resistant Prostate Cancer

Nishimura K, Ishizuya Y, Yamaguchi Y, Nakai Y, Nakayama M, Kakimoto K
 Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan

Introduction and Objectives: To assess efficacy and safety of docetaxel (DTX) chemotherapy

UP.394, Figure 1. Adjusted Kaplan-Meier Curves of Overall Survival for Metastatic Prostate Cancer Patients Stratified by the Type of Advanced Second Primary Malignancy



for castration-resistant prostate cancer (CRPC) in geriatric patients.

Materials and Methods: Patients who received DTX for metastatic CRPC in our institution were reviewed retrospectively. Patients aged 75 years or older (geriatric group, GG) were analyzed for clinical efficacy and safety by comparison with those patients aged younger than 75 years (non-geriatric group, NGG).

Results: From April 2005 to December 2013, 58 patients with metastatic CRPC were treated with triweekly DTX (75mg/m² every 3 weeks) or weekly low-dose DTX (25mg/m² days 2 and 9) with estramustine (560 mg on days 1-3 and 8-10). All patients received oral prednisolone or dexamethasone daily. Twelve (21%) patients were in GG and 46 patients (79%) were in NGG at the start of DTX. Median time from initial hormonal therapy to DTX chemotherapy was 40 months for GG versus 23 months for NGG. Median PSA was 25 ng/ml for GG versus 62 ng/ml in NGG. Metastatic sites in GG included bone in 8 patients (67%), lymph node in 4 patients (33%), whereas those in NGG included bone in 36 patients (78%), lymph node in 17 patients (37%) and other organs in 6 patients (13%). Seven (58%) patients in GG and 42 patients (91%) in NGG received triweekly DTX. Median number of DTX cycles was 6 in GG versus 8 in NGG. Nine patients (75%) in GG and 36 patients (78%) in NGG showed a PSA decline >50%. Seven patients (58%) in GG and 33 patients (71.3%) in NGG had Grade 3/4 neutropenia. Other Grade 3/4 toxicities in GG included gastric ulcer, eruption, and pneumonitis, respectively, in a patient (8%). Two-year cancer specific survival was 47% in GG versus 43% in NGG.

Conclusion: In this cohort, GG had longer time of castration-sensitive status and lower PSA level than NGG. Although dose modification or cycle reduction may be required, DTX chemotherapy is efficacious and safe in geriatric patients as well as in non-geriatric patients.

UP397

Efficacy and Tolerability of Leuporelin Acetate Alone or in Combination with an Anti-Androgen for Patients with Advanced Prostate Cancer in Daily Clinical Practice
Ohlmann C¹, Gross-Langenhoff M², Tunn U³
¹Dept. of Urology, Saarland University Medical Center, Homburg, Germany; ²Medical Dept., Astellas Pharma GmbH, Munich, Germany; ³Urological Clinic Facharztzentrum Klinikum Offenbach, Offenbach/Main, Germany

Introduction and Objectives: Androgen-deprivation therapy is the standard therapy for advanced prostate cancer (PCa). It is most often achieved by injecting long-acting luteinising-hormone-releasing-hormone (LHRH) agonists, such as leuporelin acetate (LA), either alone, i.e. as monotherapy, or in combination with

an anti-androgen, i.e. as complete androgen blockade (CAB). The role of monotherapy vs. CAB in daily clinical practice is not clarified conclusively. To gain a real life picture, we retrospectively analysed the efficacy and tolerability of LHRH monotherapy and CAB in daily clinical practice.

Materials and Methods: Two prospective, open-label, non-interventional studies were conducted in Germany in 1,906 advanced PCa patients treated with the 3-month (22.5 mg) or the 6-month (45 mg) LA depot formulation. PSA and serum testosterone (not mandatory) were measured at baseline and every 3 (22.5 mg) or 6 (45 mg) months until 12 months after treatment initiation. Physicians also rated local tolerability. We conducted a subanalysis of pooled data from both studies in patients treated with LA alone or in combination with the anti-androgen flutamide or bicalutamide.

Results: A total of 1,113 patients received monotherapy, 505 received CAB with anti-androgen. In the CAB group, the presence of metastases was more often indicated as the main reason for starting treatment (23.8% vs. 6.5% for monotherapy group). Median serum PSA levels were reduced by 97% in the LA monotherapy group (from 10.8 ng/ml to 0.3 ng/ml 12 months after treatment start) and by 96% in the CAB group (from 18.1 ng/ml to 0.8 ng/ml). Median testosterone levels were reduced by 91% in the LA monotherapy group (from 111.3 ng/dl to 9.7 ng/dl 12 months after treatment start) and by 89% in the CAB group (from 111.1 ng/dl to 12.1 ng/dl). Testosterone reduction below the castration level was sustained up to 12 months in both groups.

Conclusion: These data confirm the efficacy of the 3- and 6-month LA depot formulations in daily clinical practice, either as monotherapy or as part of CAB. In the CAB group, disease burden (metastatic disease) seemed to be higher than in the LHRH monotherapy group and was more often indicated as the main reason for starting treatment in this group. Both strategies reduced PSA and testosterone levels to a similar extent over 12 months.

UP400

Detection of Circulating Cancer Cell and PSMA Antigen by an Immunomagnetic Sensor to Improve Prostate Cancer Diagnosis
Pang S¹, Yang H², Lin C², Hua M³, Liao S², Chen Y⁴, Chen H⁵, Weng W⁴, Chuang C¹, Ma C²

¹Dept. of Urology, Chang Gung University College of Medicine and Memorial Hospital, Taipei, Taiwan; ²Dept. of Chemical Engineering, National Tsing Hua University, Hsin-chu, Taiwan; ³Dept. of Chemical and Materials Engineering, Biomedical Engineering Center, Chang Gung University, Kwei-Shan, Taiwan; ⁴Dept. of Chemical Engineering and Biotechnology and Graduate Institute

of Biochemical and Biomedical Engineering, National Taipei University of Technology, Taipei, Taiwan; ⁵Dept. of Biochemistry, School of Medicine, Taipei Medical University, Taipei, Taiwan

Introduction and Objectives: Although prostate specific antigen (PSA) is the most frequently used assay for prostate cancer (PCa) detection, its sensitivity and specificity remained to be low. Here, we developed an immunomagnetic sensor to improve PCa diagnosis through the detection of prostate-specific membrane antigen (PSMA) serum level and circulating cancer cells (CTCs).

Materials and Methods: A device containing the PSMA antibody-conjugated magnetic graphene oxide (MGO-PSMAAb) was used to capture and measuring the electrochemistry for the detection of PSMA and PCa cells in blood serum. The sensor was used to first detect PSMA in the centrifuged serum sample, and new MGO-PSMAAb can then be dropped on the electrode to further detect the number of CTCs in the re-suspended pellet from whole blood sample.

Results: The Δ current increased linearly with increasing PSMA concentrations from 1 pg mL⁻¹ to 1000 ng mL⁻¹, indicating that the response was the direct result of PSMA binding to MGO-PSMAAb. The number of PSMA-positive cells in healthy males was low (0 to 11 PSMA-positive cells mL⁻¹) as compared to PCa patients (103 to 212 PSMA-positive cells mL⁻¹). The detection limit for PSMA was 10 pg mL and 46 CWR22R PCa cells per sensor, and the amount of PSMA detected was close to that measured by ELISA.

Conclusion: Our sensor provides a broad working range, high specificity, reusability, stability, and low cost. The simultaneous and combined detection of PSMA and CTCs may result in a higher accuracy of PCa detection.

UP401

Angiopoietin-Like Protein 2 Induces Androgen-Independent and Invasive Behavior in Human Prostate Cancer Cells
Sato R, Yamasaki M, Hirai K, Matsubara T, Nomura T, Sato F, Mimata H
Dept. of Urology, Oita University Faculty of Medicine, Yufu-City, Oita, Japan

Introduction and Objectives: Angiopoietin-like proteins (ANGPTLs) are structurally similar to angiopoietins and composed of seven members (ANGPTL1 to 7). Recently, ANGPTL2 was reported to be involved in inflammatory carcinogenesis and drive metastasis. We investigated the roles of ANGPTL2 in the acquisition of androgen independency and aggressive malignant behavior of human prostate cancer cells.

Materials and Methods: Expressions of ANGPTLs mRNA and proteins were determined

by quantitative real-time PCR and Western blot analysis in androgen dependent and independent prostate cancer cell lines. Androgen dependent LNCaP and independent LNCaP/DHT(-) cells were cultured in fetal bovine medium and charcoal-stripped medium, respectively. The proliferation, androgen-dependency, migration and invasion of LNCaP cells were examined under overexpression and knockdown of ANGPTL2 by transfection of ANGPTL2 cDNA and its siRNA, respectively. The effects of exogenous ANGPTL2 and blocking of its receptor, integrin $\alpha 5 \beta 1$, were also investigated. Immunohistochemical analysis was performed using radical prostatectomy specimens obtained from patients with and without neoadjuvant hormonal therapy.

Results: Human prostate cancer cell lines predominantly expressed ANGPTL2 among the members. Interrupting ANGPTL2 expression suppressed the proliferation, invasion, and migration of LNCaP cells. LNCaP/DHT(-) cells showed higher ANGPTL2 expression than LNCaP cells did. Furthermore, LNCaP/DHT(-) cells showed higher proliferation, invasion, and migration than LNCaP cells did. Si-RNA led to apoptosis with increased caspase-9, caspase-3, and cleaved PARP in LNCaP/DHT(-) cells. The ANGPTL2-overexpressing LNCaP cells markedly increased the proliferation, epithelial-to-mesenchymal transition (EMT) and invasive behavior in androgen-deprived medium. The migration rates were increased markedly depending on the concentration of ANGPTL2 recombinant protein and inhibited by anti-integrin $\alpha 5 \beta 1$ antibodies. Weakly positive staining of ANGPTL2 was observed in the specimens obtained from patients without neoadjuvant hormonal therapy, however surviving prostate cancer cells were strongly positive staining after hormonal therapy.

Conclusions: The present study demonstrates the expression of ANGPTL2 in human prostate cancer cells for the first time. ANGPTL2 may play an important role in the acquisition of androgen-independency and tumor progression of prostate cancer by autocrine and/or paracrine manner via integrin $\alpha 5 \beta 1$ receptor. Targeting ANGPTL2 might be an efficacious therapeutic modality for prostate cancer, especially for androgen-independent prostate cancer.

UP402

Prognostic Value of Structural and Ultra-Structural Changes of Erythrocytes

Kotrikadze N¹, Veshapidze N¹, Ramishvili L¹, Alibegashvili M¹, Gordeziani M¹, Chigogidze T², Gabunia N²

¹Dept. of Biology, Faculty of Exact and Natural Sciences, Iv. Javakhsishvili Tbilisi State University, Tbilisi, Georgia; ²Dept. of Urology, Faculty of Medicine, Iv. Javakhsishvili Tbilisi State University, Tbilisi, Georgia

Introduction and Objectives: The defense function of erythrocytes that reveals in absorption, transportation and participation in metabolic processes is an important regulative mechanism of organism. The aim of the work was to study the erythrocytes morphology in order to estimate the prognostic value of the structural and ultra-structural changes of erythrocytes of men with prostate adenocarcinoma before and after plastic orchiectomy.

Materials and methods: Blood erythrocytes of 15-15 male patients with prostate adenocarcinoma before and after plastic orchiectomy and 15 of practically healthy men were studied by means of light and electron microscopy.

Results: The study of erythrocytes with light microscopy in patients with prostate adenocarcinoma before the plastic orchiectomy has revealed all structural parameters that are characteristic to the control group erythrocytes, with the following differences: normocytes without central pallor, small diameter normocytes with central pallor, long erythrocytes and big diameter normocytes with central pallor were increased, while the normocytes with central pallor and middle diameter normocytes with central pallor were decreased, as well as the number of erythrocytes with protuberances and folds and adhesion of thrombocytes on the surface of erythrocytes has been decreased. The normalisation of some erythrocytes' structural characteristics takes place after plastic orchiectomy. Furthermore, the erythrocytes with protuberances and folds and the adhesion of thrombocytes have not been detected in patients after plastic orchiectomy. Electron microscopy studies of erythrocytes before and after plastic orchiectomy revealed weakly outlined, shape changed pathological erythrocytes. Also the long shaped erythrocytes, in both cases, were also found that mostly produce sledges. Investigation has revealed that after plastic orchiectomy sledges appear in blood not only between erythrocytes, but also between erythrocytes and thrombocytes too.

Conclusion: Thus, the microscopic study of erythrocytes is of prognostic importance in genesis of prostate cancer, because this kind of investigations gives the essential information about the processes that take place in organism with tumor pathology.

UP403

Ceruloplasmin as an Antioxidant Preparation in Case of Prostate Tumors

Ramishvili L¹, Zibzibadze M¹, Gordeziani M¹, Khazaradze A¹, Chigogidze T², Managadze L², Kotrikadze N¹

¹Dept. of Biology, Faculty of Exact and Natural Sciences, Iv. Javakhsishvili Tbilisi State University, Tbilisi, Georgia; ²Dept. of Urology, Faculty of Medicine, Iv. Javakhsishvili Tbilisi State University, Tbilisi, Georgia

Introduction and Objectives: Natural blood plasma antioxidant, Ceruloplasmin (Cp) plays the defense role in organism as nonspecific agent in several kinds of pathologies (inflammatory processes, tumor growth and other patho-physiological conditions). The basis of Cp defense function is enzyme's antioxidant features and correspondingly inhibition of free radical processes. It's also known that in biological systems exogenous Cp preparation exposes inhibitory effect. This fact promotes to use Cp for treatment of some patho-physiological cases. The goal of given work was: to study Cp preparation antioxidant activity *in vitro* in the blood of men with prostate tumors and to determine what sort of connection is between Ceruloplasmin's antioxidant and oxidative activities in given pathology.

Materials and Methods: The blood plasma of the patients with Benign Prostate Hyperplasia (BHP) and Cancer of Prostate (CaP) served as material for the studies. Each group was consisted of 15 men. The patients with age of 60-75, at primary revealing of a tumor, were investigated. The control group was consisted of 15 practically healthy males of the compatible age. For evaluation of Endogenous Cp Oxidative activity (530nm) and amount in the blood plasma, modified Ravin method has been used, which implies Cp-induced oxidation of the *p*-phenylenediamine dihydrochloride. Antioxidant activity of Cp was evaluated by the inhibition of lipid peroxidation process while incubation with Cp or without it. Lipid peroxidation was determined by the overall amount of malone dialdehyde (MDA) and was shown as nm/ml.

Results: The study of Ceruloplasmin's antioxidant activity has revealed that, Cp preparation in 100-200 $\mu\text{g/ml}$ concentrations caused inhibitory effect on the lipid peroxidation intensity in all experimental groups (BHP and CaP). In case of higher Cp concentrations (300-800 $\mu\text{g/ml}$) inhibitory effect on lipid peroxidation was considerably decreased. It has been determined that antioxidant activity doesn't depend on enzyme's oxidative activity and functions independently (at least partially). The different mechanism of antioxidant and oxidative activities might be conditioned by existence of independent sites of substrate binding and alternative ways of electron transfer in Cp.

Conclusion: Obtained results point at Ceruloplasmin's superior role in antioxidant processes and on its established perspective in treatment of prostate tumor pathologies.

UP404

SHARPIN Overexpression Induces Tumorigenesis in Human Prostate Cancer LNCaP, DU145 and PC-3 Cells via NF-kB/ERK/Akt Signaling Pathway

Huang H, Lai Y, Du T, Zhang Y, He W, Dong W, Zhu D, Lin T, Huang J, Guo Z

Sun Yat-sen Memorial Hospital, Sun Yat-sen University, Guangzhou, China

Introduction and Objectives: SHANK-associated RH domain-interacting protein (SHARPIN) plays an important role in inflammation and the development of the immune system. However, there is no study about the role of SHARPIN in the proliferation, apoptosis, and migration of prostate cancer, and its mechanisms are still unknown.

Materials and Methods: We first investigated the expression of Sharpin protein in tissues of prostate cancer and benign prostate hyperplasia by immunohistochemistry, and the relationship with tumor clinic-pathological features was analyzed. Then we constructed and transfected Sharpin expression vector (pcDNA3.1-Sharpin) to LNCaP, DU145 and PC-3 cells, and testified the efficacy of SHARPIN overexpression by RT-PCR and Western blot. Then we tested the cell proliferation by MTS assay, apoptosis and cell cycle distribution by flow cytometry assay, and cell migration and invasion by transwell assay, respectively. Furthermore, we compared the expression of P65, p-P65, Ikb α , p-Ikb α , ERK, p-ERK, Akt, p-Akt, Bcl-2, Bax, Survivin and Caspase-3 by Western blot among groups.

Results: By means of immunohistochemistry, we observed that the expression level of SHARPIN in the cancerous tissues was significantly higher than benign prostate hyperplasia ($P < 0.001$). In addition, we found that the level of SHARPIN in prostate cancer was significantly correlated with Gleason Grade and serum t-PSA ($P < 0.05$). After transfection with pcDNA3.1-Sharpin, the level of SHARPIN increased approximate 106.07%, 89.27% and 276.40% compared with the NC groups in LNCaP, DU145 and PC-3 cell line respectively (all $P < 0.05$). Overexpression of SHARPIN in LNCaP, DU145 and PC-3 cells promoted cell proliferation, invasiveness and migration. SHARPIN overexpression also inhibited the cell cycle arrest in S phase, and showed decreased apoptosis. Furthermore, SHARPIN overexpression LNCaP, DU145 and PC-3 cells displayed elevated Bcl-2 and Survivin expression and reduced levels of Bax, cleaved caspase 3. SHARPIN overexpression increased the levels of phosphorylated Ikb α , which is known to increase p-P65 degradation. The activated survival pathways, ERK1/2 and Akt, were selectively increased in these cells, which characteristically have higher tumorigenicity.

Conclusions: Overexpression of SHARPIN induces tumorigenesis of prostate cancer cells through the NF- κ B/ERK/Akt pathway. Furthermore, our findings suggest new lines of investigation aimed at developing therapies by targeting SHARPIN or its aberrant expression-associated stimulated antiapoptotic pathways.

UP.405

Frequency of RNASEL R462Q Allelic Variant in Prostate Cancer Patients in Brazilian Population

Dias A¹, Curvo R², Quindós G¹, Capibaribe D¹, Frota R¹, Mattos R¹, Pedrosa J¹

¹Bonsucesso Federal Hospital, Rio de Janeiro, Brazil; ²Rio de State University, Rio de Janeiro, Brazil

Introduction and Objectives: The Hereditary Prostate Cancer gene (HPC1) codes for an endoribonuclease named RNase L, enrolled in interferon-linked immune response and in cell cycle regulation. The allelic variant R462Q (G1385A polymorphism), when in homozygosis (Q/Q), have been described as a marker of neoplastic susceptibility and prognosis, in different populations. We developed a real time PCR essay aiming rapid and low cost allelic discrimination of Aa462 position on HPC1 gene to estimate the behavior and prognostic relations of that mutation in Brazilian prostate cancer patients.

Materials and Methods: We selected 72 patients with prostate cancer, who received primary surgical treatment (Retropubic Radical Prostatectomy) and were on a regular follow-up. The clinical-pathological data was gathered retrospectively from medical records. The blood DNA was extracted and the allelic discrimination was performed with a real time PCR, using specific primers for R and Q alleles and Aa462 position. Age at diagnosis, Gleason Score of surgical specimen and initial PSA were reviewed, searching for correlations with molecular analysis.

Results: From 72 patients in study, 34 (47.22%) do not carry any trace of the mutation (RR), 31 (43.05%) were heterozygous (RQ), and 7 (9.72%) displayed the mutation on both chromosomes (QQ). The median age was 62 years old for the homozygous, QQ, mutation group. For the RQ and RR groups, the median age was, 64 and 64.5, respectively. The median PSA value was 12, 10 and 9.85, for the QQ, RQ and RR groups. The Gleason Score was 8 or 9 in 2 out of 7 (28.57%) patients in QQ group. Within the RQ and RR groups we identified 4 (12.9%) and 6 (17.64%) patients with this high-risk Gleason score. None of the observed differences between groups reached statistical significance.

Conclusion: A significant fraction of patients with prostate cancer in this cohort had allelic variant R462Q in HPC1/RNASEL gene, with nearly 10% homozygous mutation. The clinical-pathological characteristics evaluated did not show a positive correlation with this mutation after statistical analysis.

UP.406

An Automated, Sensitive, High-Throughput Biomarker Protocol for Tissue Microarrays Containing Archival Prostate Specimens: The Prognostic Potential of an ERG EMT Panel

Brown M¹, Al-Sukani A¹, Hart C¹, Ramani V^{2,3}, Lau M^{2,4}, Sangar V^{2,3}, Clarke N^{2,4}

¹Genito Urinary Cancer Research Group, University of Manchester, Manchester, UK; ²The Christie NHS Trust, Manchester, UK; ³South Manchester University Hospital, Manchester, UK; ⁴Salford Royal NHS Trust, Salford, UK

Introduction and Objectives: Tissue microarrays (TMAs), linked to clinical databases containing clinical outcome data, offer a great potential for defining and validating new biomarkers in urological oncology. The long-term follow-up required for true clinical outcome prostate cancer results in the use of archival material for TMA construction. The use of such material has inherent problems which must be overcome to unlock the full potential of prostate TMAs.

Materials and Methods: A prostate 2,450 core TMA containing normal, prostatic intraepithelial neoplasia and malignant prostate tissue from 524 archival patient specimens was constructed and analysed. Each core was independently verified histologically. An automated, high throughput fluorescent staining (Leica BOND-MAX), image capture (Carl Zeiss Microimaging Mirax scanner) and scoring (Definers Tissue Studio) protocol was compared with standardised conventional staining and manual scoring techniques.

Results: Image analysis showed excellent correlation ($r=0.785$) and absolute agreement between the automated and manual scoring protocols (ICC=0.769, 95% CI [0.629-0.877]). Replicate analysis demonstrated that the automated, high throughput protocol was more reliable and consistent than the standardised manual staining and scoring protocols. The increased sensitivity of fluorescent staining in the automated protocol highlighted significant ($p > 0.0001$) antigen degradation (pan-cytokeratin), hence poorly preserved regions, in 50.7% of the archival TMA cores. Initial analysis of expression levels in well preserved cores show no correlation between single or combined marker expression with outcome. The inclusion of normal cores from the same patient enables analysis of the fold change in marker expression between normal and tumour cores, normalising each tumour core to the patient. The potential of individual patient normalised Erg expression combined with EMT markers as a prognostic indicator will be presented.

Conclusions: This study shows that archival TMAs can be utilised for biomarker characterisation and validation. However there are caveats to their use, namely antigen preservation. The use of multicolour automated protocols, which

utilise a house keeping antigen, circumvents these caveats and releases the full potential of TMAs in biomarker research.

UP408

Combining Prostate Health Index and Multiparametric MRI Findings for Prostate Cancer Diagnosis

Acar Ö¹, Paloglu E², Vural M³, Cezayirli F¹, Musaoğlu A¹, Esen T^{1,4}

¹Dept. of Urology, VKF American Hospital, Istanbul, Turkey; ²Dept. of Biochemistry, VKF American Hospital, Istanbul, Turkey; ³Dept. of Radiology, VKF American Hospital, Istanbul, Turkey; ⁴School of Medicine, Koc University, Istanbul, Turkey

Introduction and Objectives: Prostate Health Index (Phi) and multiparametric prostate MRI (Mp-MRI) are useful clinical adjuncts that help the physician to better understand the risk of prostate cancer. In this study, we evaluated the combined diagnostic performance of Phi and Mp-MRI.

Materials and Methods: We retrospectively evaluated the charts of the patients who were assessed by Phi test between June 2012 and May 2013. According to the Phi result, patients were assigned to risk categories; 0-20.9 (low risk), 21-39.9 (moderate risk), ≥40 (high risk). Some of these patients underwent Mp-MRI and prostate biopsy was ordered for those with clinical and radiologic suspicion of prostate cancer. We analyzed the diagnostic yield in each risk group.

Results: Out of 72 patients, 4 (5.5%), 42 (58.3%) and 26 (36.1%) patients were assigned to low, moderate and high risk categories, respectively according to their Phi result. Mean patient age in low, moderate and high risk categories was 51.7±13.6, 60.9±7.9 and 60.9±10.8 years, respectively. Mean serum PSA value was, 3.8±1.4, 4.7±2.6 and 9.5±10.7 ng/ml in low, moderate and high risk groups, respectively. Thirteen patients in moderate risk group and 16 patients in high risk group were further evaluated by Mp-MRI. Of these, 5 in moderate risk group and 10 in high risk group were

reported to harbor highly suspicious lesions on Mp-MRI. Based on the clinical and radiologic data, 4 patients in moderate risk group and 9 patients in high risk group were biopsied. Eventually, all of the biopsies in moderate risk group were negative whereas 8 out of 9 prostate biopsies (88.8%) revealed prostate cancer in high risk group.

Conclusion: Phi result >40 and highly suspicious lesions on Mp-MRI will most probably translate into a histopathologic diagnosis of prostate cancer.

UP409

Correlation of Multi-Parametric MRI with Template Trans-Perineal Prostate Mapping in Diagnosis of Prostate Cancer

Yek J, Chen K, Tay K, Ho H, Yuen J, Tan E, Cheng C

Singapore General Hospital, Singapore

Introduction and Objectives: To correlate findings detected on multi-parametric Magnetic Resonance Imaging (mp-MRI) with positive prostate biopsy in template trans-perineal prostate-mapping (TTPM) biopsy, in diagnosis of prostate cancer (PCa).

Materials and Methods: A consecutive cohort of patients in a tertiary institution, from May 2011 to December 2013, with rising PSA and between 0 - 2 negative TRUS biopsies underwent mp-MRI and TTPM biopsy. mp-MRI protocol included T1-weighted, T2-weighted, apparent diffusion coefficient maps of diffusion-weighted images and dynamic contrast-enhanced imaging. Images were read independently in routine clinical setting by experienced radiologists. Suspicious lesions, defined as any lesions seen on 1 - 3 sequences, were categorized into an 8-region subdivision of the prostatic gland, according to the anatomical (anterior fibromuscular stroma, central, transitional and peripheral) zones of each prostatic lobe. Systematic biopsy cores were grouped into identical anatomical subdivisions and Gleason score of each region was taken as the highest score observed amongst all positive biopsies. A total of 14 patients with mpMRI-detected

lesions were included, and their histology findings were compared with mpMRI-detected lesions to determine the detection rate of PCa in each region.

Results: Mean patient age was 60 years with mean prostate volume of 31.8 mls; mean PSA 9.10ng/ml; mean PSA density of 0.25; mean number of cores 31. Prostate cancer was detected in 11 of the 14 patients. Seven of these patients had corresponding mpMRI-detected lesions, of which four had Gleason ≥ 7. Seven patients had positive biopsy in regions undetected by mp-MRI - of which, three had Gleason ≥ 7. Six of these patients had undetected lesions in TZ, four in AFS, three in CZ and only one in PZ. mpMRI has a positive predictive value of 47.0% and negative predictive value of 76.8% for PCa.

Conclusions: MpMRI can guide systematic prostatic biopsy in detection of PCa but will not suffice alone to replace with mpMRI-targeted biopsy altogether.

UP410

The Effect of Finasteride on Prostate Volume in Men with Androgenetic Alopecia

Ahmadnia H¹, Yazdanpanah M², Kamalati A³, Imani M⁴, Younesi Rostami M⁵, Rajabpoor Sanati F⁶

¹Dept. of Urology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran;

²Dept. of Dermatology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ³Dept. of Urology, Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran; ⁴Dept. of Urology, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran; ⁵Dept. of Urology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran; ⁶Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Recent studies have indicated that treatment with finasteride 5mg/day leads to reduction of prostate cancer prevalence compared to patients who were treated with placebo. However, prevalence of high grade cancers in these patients increases. It is not clear whether or not finasteride 1mg/day which is indicated in androgenetic alopecia treatment affects prostate volume and therefore changes the rate of high grade prostate cancer detection. The aim of this study is to estimate the effect of finasteride 1mg/day on prostate volume in patients with androgenetic alopecia. **Materials and Methods:** A total of 25 men with androgenetic alopecia participated in this randomized clinical trial study and treated with finasteride 1mg/day for a year. Prostate volume was measured before treatment, 6 months and one year after treatment. Furthermore, 25 healthy men without any previous history or suspicious background in relation with diseases

UP408, Table 1. Mp-MRI findings, Phi Results and Biopsy Outcome in the Study Population. CaP: Prostate Cancer, Bx: Transrectal Prostate Biopsy

| Low risk, n (CaP/Bx/total) | | Risk category according to Phi result | | | |
|----------------------------|--------------------------|---------------------------------------|-----------------------------|----------|----------|
| | | Moderate risk, n (CaP/Bx/total) | High risk, n (CaP/Bx/total) | Total | |
| Mp-MRI findings | High degree of suspicion | 0/0/0 | 0/4/5 | 6/7/10 | 6/11/15 |
| | Low degree of suspicion | 0/0/0 | 0/0/8 | 2/2/6 | 6/11/15 |
| | Mp-MRI was not performed | 0/0/4 | 1/4/29 | 3/5/10 | 6/11/15 |
| | Total | 0/0/4 | 1/8/42 | 11/14/26 | 12/22/72 |

or conditions that affect prostate volume participated in this study as control group, while prostate volume were measured in this group similar to the study group.

Results: The mean age of case and control groups was 30.8 ± 8.15 and 31.16 ± 8.15 years, respectively. During one year of treatment with finasteride 1mg/day in patients with androgenetic alopecia, mean prostate volume reduced 14% and 16% after 6 and 12 months of treatment, respectively (from 18.68 ± 4.2 to 16 ± 3.39 cm³ and from 18.68 ± 4.2 to 15.52 ± 3.40 cm³).

Conclusion: In this study, finasteride 1mg/day results in reducing prostate gland volume after treatment. In fact, this reduction is slightly lower than other studies; however, it is of paramount importance that treatment with finasteride 1mg/day should be considered in interpreting the results of prostate biopsies, especially in order to detection of high grade prostate cancers.

UP411

Importance of Prostate-Specific Antigen Screening before and after Bacillus Calmette-Guérin Intravesical Bladder Instillation Treatment to Avoid Unnecessary Prostate Biopsy

Okamura T¹, Akita H¹, Tanaka Y¹, Yamada K¹, Kobayashi T¹, Ando R², Kawai N², Tozawa K²
¹J.A. Aichi Anjo Kosei Hospital, Anjo, Japan;
²Nagoya City University, Nagoya, Japan

Introduction and Objectives: Adverse effects of Bacillus Calmette-Guérin (BCG) intravesical instillation therapy vary widely, and can include BCG-induced prostatitis. The rate of prostatitis was 0.2% (17/3,377 cases) in a post-marketing surveillance study in Japan. In contrast, prostate cancer that emerges as bladder cancer is frequently observed. In some cases, the clinical diagnosis is difficult. Therefore, if prostate-specific antigen (PSA) levels increase after BCG therapy, a prostate biopsy should be performed to rule out a diagnosis of prostate cancer. This study aimed to determine whether a significant association exists between intravesical BCG immunotherapy and an increase in serum PSA; an association could help avoid unnecessary prostate biopsies.

Materials and Methods: PSA values were determined in 114 men who had undergone intravesical BCG instillation at our institution between 2000 and 2012. The mean age of the patients was 69.2 years (range, 40–87 years). All cases were of urothelial cancer; the histological classification was G1 in 9 patients, G2 in 74 patients, G3 in 17 patients, and carcinoma *in situ* in 14 patients.

Results: PSA was measured more than once in 37 out of 100 cases, except the cases diagnosed with prostate cancer. Patients showed an increase in PSA levels in 7 cases, and 3 patients showed an increase in PSA levels after BCG

treatment. There were 2 cases of granulomatous prostatitis after BCG treatment, which led to a definitive diagnosis via biopsy. Furthermore, there were 14 cases of opportunistic prostate cancer, 8 cases of suspected prostate cancer, 2 cases identified through hematuria examination, 1 case identified during medical screening, and 3 cases undergoing treatment due to a previous diagnosis of prostate cancer.

Conclusion: Our results confirm that PSA examination is essential before and after BCG treatment. PSA elevation in patients treated with intravesical BCG is self-limiting; prostate biopsies are not mandatory in these patients and could be delayed while PSA levels are monitored. However, prostate biopsies are mandatory in patients with abnormal PSA elevation, because there are many metachronous occurrences of prostate cancer.

UP412

Significance of Hypoechoic Lesion in Trans Rectal Ultrasonography

Kim B, Ha J, Jung W, **Park C**, Kim C
 Keimyung University, Daegu, South Korea

Introduction and Objectives: Hypoechoic lesions in trans rectal ultrasonography (TRUS) of the prostate are known as associated with cancer, but it is a not clearly conclusive. We analyzed that the relationship between hypoechoic lesions seen in TRUS and prostate cancer.

Materials and Methods: From January 2009 to December 2012 in our institution, 501 patients who performed transrectal needle biopsy were analyzed. Prostate specific antigen (PSA), digital rectal examination, prostate volume, TRUS findings were analyzed. Also, we investigated correlation of hypoechoic lesion locations in TRUS and positive core locations in prostate needle biopsy.

Results: The mean age of the patients was 68.8 years old. The median prostate volume was 45gm (range, 17 – 270gm). Median serum PSA level was 11ng/ml (range 1.7 – 4083ng/ml). A total of 44.9% (225/501) cases were diagnosed with prostate cancer. Transrectal ultrasonography showed a hypoechoic lesion in the 135 cases (27.0%), and 30 (22.2%) patients of these patients were diagnosed with prostate cancer. Hypoechoic lesion in the ipsilateral lobe and in the case of cancer was diagnosed in 15 cases (11.1%). Depending on the size of the hypoechoic lesion, less than 0.5cm, 5 cases (4.6%) in the diagnosis of cancer, but, more than 0.5cm, 25 cases (92.5%) were diagnosed in the prostate cancer. PSA values were not associated with the presence of hypoechoic lesion. In cases of hypoechoic lesion with PSA was lesser than 3ng/ml, 29.6% (8/49) were diagnosed prostate cancer. Digital rectal examination was performed in 241 cases. There were 177 cases with palpable nodule and 92 cases (52.0%) were diagnosed with cancer. In multivariate analysis,

prostate cancer patients had higher PSA ($p < 0.01$) and palpable nodule at digital rectal examination ($p = 0.02$). But old age, prostate size and the presence of hypoechoic lesion was not related.

Conclusion: The cases of hypoechoic lesion in TRUS with normal PSA were diagnosed to prostate cancer in 29.6%. The hypoechoic lesion larger than 0.5cm was likely to be a cancer. But, PSA and digital rectal examination were more accurate to diagnosis of the prostate cancer.

UP414

Evaluation of the Efficacy of a Combination of Benzocaine Gel and Periprostatic Nerve Block in Pain Control during Transrectal Ultrasonography-Guided Biopsy of the Prostate

Takeda H, Nakano Y, Narita H
 Dept. of Urology, Tosei General Hospital, Aichi, Japan

Introduction and Objectives: The choice of analgesia during prostate biopsy remains controversial. Periprostatic nerve block (PPNB) is currently the gold standard modality for decreasing pain of prostate biopsy. We determined the efficacy of anesthesia for prostate biopsy by a combination of benzocaine gel and periprostatic nerve block.

Materials and Methods: A total of 121 consecutive patients undergoing prostate biopsies were randomized into A: lidocaine with benzocaine gel used Hurracaine Topical Anesthetic Gel (n=61) and B: benzocaine gel only groups (n=60). A 5 ml. dose of 1% lidocaine was injected via 18 gauge needles inserted through the transrectal ultrasound probe working channel and aimed at the prostatic neurovascular bundles bilaterally. Patients completed a symptom questionnaire applying a visual analog scale of 0–none to 10–maximal addressing pre-procedure anxiety, overall pain and discomfort throughout the procedure, pain during biopsy punctures and patient tolerance, as judged by the operator. Student's t test was used to analyze continuous variables and the chi-square test was applied for categorical data.

Results: The average pain level throughout the procedure was 2.73 in the lidocaine group versus 4.76 in the control group ($p=0.04$), while the pain level during biopsy punctures was 1.32 versus 4.12 ($p=0.001$) and patient tolerance was 1.06 versus 1.93 ($p=0.018$). The level of discomfort throughout the procedure was lower in the lidocaine combination of benzocaine gel and periprostatic nerve block group with borderline significance (4.31 versus 5.24, $p=0.077$). The combination and control groups were comparable regarding average patient age (70.2 and 70.9 years, respectively). Prostate volume was similar in the 2 groups (27.5 versus 28.4 ml.). The median number of biopsy

punctures was 11.2 and 11.6, respectively.

Cancer was identified in 32.1% patients.

Conclusions: The combination of benzocaine gel and PPNB with 1% lidocaine is more effective method of anesthesia for prostate biopsy than without 1% lidocaine.

UP415

Before, during and after Prostate Biopsy

PSA Change Relation with Prostate

Cancer and Benign Prostate Hyperplasia

Kilinc M¹, Goger Y¹, Esen H², Piskin M¹,

Kandemir A¹

¹Dept. of Urology, Faculty of Medicine, Necmettin Erbakan University Meram, Konya, Turkey;

²Dept. of Pathology, Faculty of Medicine,

Necmettin Erbakan University Meram,

Konya, Turkey

Introduction and Objectives: We studied the changes in the PSA level before and after prostate biopsy. The present study aims to expose the difference between prostate cancer (PrCa) and Benign Prostate Hyperplasia (BPH) in PSA fluctuation.

Materials and Methods: A total of 436 patients underwent TRUSG prostate biopsy during 2008-2012. Out of these patients, 285 had BPH and 151 PrCa according to pathology results. In the present study serum PSA levels were measured right after PSA2, PSA3 after 30 minutes (PSA4), and 24 hours (PSA5) following biopsy to the right and left prostate lobes (Table 1). PSA1, PSA2, PSA3, PSA4, and PSA5 levels were compared with each other as pairs in BPH and PrCa groups (Table 2).

Results: PSA1, PSA2, PSA3, PSA4, and PSA5 levels of 436 who underwent TRUSG prostate biopsy were measured. Among the measured pairs there was not any statistically significant difference in both BPH and PrCa groups ($p>0.05$); yet, there was a difference present in ,PSA1-PSA2, PSA1-PSA3, PSA1-PSA4, PSA1-PSA5, PSA2-PSA3, PSA2-PSA5, PSA3-PSA4, PSA3-PSA5, PSA4-PSA5 pairs ($p<0.05$). In the PrCa group, the PSA1, PSA2, PSA3, PSA4, PSA5 levels were significantly higher than those in the BPH group. Among the measured pairs, the difference in the BPH group was higher compared to the PrCa group. Especially in the PSA1-PSA2, PSA1-PSA3 pairs the difference in the BPH group was higher in comparison to the PrCa group. In the PrCa group the difference among the measured pairs lower compared to BPH group.

Conclusion: The high difference among the PSA measured pairs could be considered as BPH; yet, if all the values are in close proximity it might be an indicator of PrCa. Changes in the measured PSA pairs might require a reevaluation of cancer patients with negative biopsy results in actual clinical use.

UP415, Table 1. PSA Values of BPH and PrCa Patients

| | BPH (n:285) | | | Pr Ca (n:151) | | |
|------|---------------------|----------------|----------|------------------|----------------|----------|
| | Mean | Std. Deviation | Variance | mean | Std. Deviation | Variance |
| YAŞ | 64.82 (47-86) | 8.33 | 69.46 | 68.83 (46-91) | 8.99 | 80.96 |
| PSA1 | 12.06 (0.40-150.00) | 12.85 | 165.23 | 38.69 (2.30-152) | 46.1 | 21.40 |
| PSA2 | 57.86 (2.80-154.00) | 43.68 | 1908.40 | 73.12 (2.50-296) | 53.49 | 28.73 |
| PSA3 | 70.21 (3.40-152) | 48.1 | 2314.97 | 84.64 (7.20-299) | 54.59 | 29.62 |
| PSA4 | 54.78 (3.20-152) | 41.36 | 1710.84 | 75.32 (6.40-298) | 53.50 | 28.29 |
| PSA5 | 30.17 (3.20-150) | 23.61 | 557.77 | 51.19 (4.10-308) | 50.83 | 25.57 |

UP415, Table 2. Statistical Comparison of PSA Levels of BPH and PrCa Groups

| | BPH | | | | Pr Ca | | | |
|-------------|----------------|----------------|-----------------|------|----------------|----------------|-----------------|------|
| | Mean | Std. Deviation | Std. Error Mean | Sig | Mean | Std. Deviation | Std. Error Mean | Sig |
| PSA1 - PSA2 | 45.96 (40-50) | 42.88 | 2.54 | .000 | 34.66 (28-41) | 40.40 | 3.29 | .000 |
| PSA1 - PSA3 | 58.34 (52-63) | 47.92 | 2.84 | .000 | 46.23 (38-53) | 47.17 | 3.85 | .000 |
| PSA1 - PSA4 | 42.86 (38-47) | 41.01 | 2.43 | .000 | 36.88 (30-43) | 40.84 | 3.33 | .000 |
| PSA1 - PSA5 | 18.17 (15-20) | 23.48 | 1.39 | .000 | 12.72 (9-16) | 20.70 | 1.69 | .000 |
| PSA2 - PSA3 | 12.34 (9,6-15) | 25.16 | 1.49 | .000 | 11.51 (7,1-15) | 27.04 | 2.20 | .000 |
| PSA2 - PSA4 | 3.08 (0,2-6,3) | 28.25 | 1.67 | .067 | 2.20 (0,8-6,9) | 25.54 | 2.07 | .291 |
| PSA2 - PSA5 | 27.68 (23-32) | 37.79 | 2.23 | .000 | 21.92 (16-27) | 32.69 | 2.66 | .000 |
| PSA3 - PSA4 | 15.42 (12-18) | 22.73 | 1.34 | .000 | 9.31 (6,5-12) | 17.43 | 1.41 | .000 |
| PSA3 - PSA5 | 40.03 (35-44) | 41.83 | 2.47 | .000 | 33.44 (27-39) | 39.14 | 3.18 | .000 |
| PSA4 - PSA5 | 24.60 (20-28) | 33.18 | 1.96 | .000 | 24.12 (18-29) | 32.11 | 2.61 | .000 |

UP416

Comparison of PSA Values of Prostate Cancer Patients before, during and after Prostate Biopsy Using Gleason Score

Kilinc M¹, Goger Y¹, Esen H², Ozturk A¹, Balasar M¹

¹Dept. of Urology, Faculty of Medicine, Necmettin Erbakan University Meram, Konya, Turkey;

²Dept. of Pathology, Faculty of Medicine, Necmettin Erbakan University Meram, Konya, Turkey

Introduction and Objectives: The prostate specific antigen (PSA) levels of prostate cancer patients have been measured during, and after prostate biopsy. We studied the reaction of cancerous prostate tissue to the changes in PSA levels.

Materials and Methods: In the present study 151 patients who underwent prostate biopsy with TRUSG and had prostate cancer according to pathology results were evaluated. The prostate specific antigen levels were measured right after (PSA2, PSA3), 30 minutes (PSA4), and 24 hours (PSA5) following an intervention to the right and left lobes of the prostate. The pathologic specimen obtained during the biopsy was categorized according to Gleason Grading System. Hence four groups were formed. Group 1 consisted of the tissue scored as under 6, Group 2 as 6, Group 3 as 7, Group 4 as above seven (Table 1). PSA1, PSA2, PSA3, PSA4, and PSA5 levels of the patients were compared according to their groups. Intergroup changes have been measures in pairs using paired difference test. The relation between

changes in measured groups and relation between Gleason Score were compared (Table 2). **Results:** PSA1, PSA2, PSA3, PSA4, and PSA5 levels of 151 prostate cancer patients have been measured. Whereas there was not any statistically significant difference among the PSA2-PSA4 pair ($p>0.05$), there was a significant difference in PSA1-PSA2, PSA1-PSA3, PSA1-PSA4, PSA1-PSA5, PSA2-PSA3, PSA2-PSA5, PSA3-PSA4, PSA3-PSA5, PSA4-PSA5 pairs ($p<0.05$). In the groups categorized according to Gleason Grading System, the higher Gleason score was the less was the statistically meaningful difference among the groups. In both Group 1 and 2, there was not any statistically significant difference among the PSA2-PSA4 pair likewise in the PSA3-4 pair in Group 3, and PSA2-PSA5 in Group 4. The higher the Gleason score was the closer were the increase ratio in PSA2, PSA3, PSA4, and PSA5 levels. **Conclusion:** Despite the increase in PSA levels with the increase in Gleason Score, the difference among the measures PSA pairs decreased. The higher the prostate cancer grade became, the lower did PSA secretion sank. In prostate

cancer patients with close scores for measured pairs, Gleason score can also be considered to be high in actual clinical use.

UP.417

Post Prostate Biopsy Pain: Is Analgesia Essential?

Kyei M¹, Mensah J¹, Klufio G¹, Mante S², Toboh B¹, Ali M¹, Johnson B³, Yeboah E¹

¹University of Ghana Medical School, Accra, Ghana; ²37 Military Hospital, Accra, Ghana; ³Yale Center for Analytical Sciences, New Haven, USA

Introduction and Objectives: The use or otherwise of analgesia for post prostate biopsy pain relief is based on the practitioner's preference. The objective of this study was to establish if there is the need for post prostate biopsy analgesia and to determine the appropriate duration of the analgesia if so used.

Materials and Methods: A randomized prospective study of 250 patients scheduled for TRUS biopsy of the prostate from January 2013 to November 2013 was carried out. The patients

had 12 core biopsy of the prostate performed with a peri-prostatic block using 2% lignocaine injection. The patients were randomized to; Group 1 (n=64) with a mean age of 67.4 (range 52-82) with no post biopsy administration of analgesia; Group 2 (n=69) mean age of 67.4 (range 40-83) to receive 1g of acetaminophen 8 hourly for one day (24 hours); and Group 3 (n=117) with a mean age of 65.9 (range 45-89) for 2 days (48 hours). The parameters documented included the age, TRUS prostate volume, PSA density, the histology of the specimen and the 10 point visual analogue pain scores on post procedure days 1, 2 and 3.

Results: Comparing Group 1 with no post biopsy analgesia to Groups 2 with a day (24 hours) and Group 3 with 2 days (48 hours) of analgesia, pain scores on days 1, 2 and 3 were significantly greater for Group 1; $p = 0.0046$, $p = 0.0399$ and $p = 0.0118$ respectively. Comparing Group 2 to Group 3, there was no evidence that pain scores on days 1, 2 and 3 was different between the two groups; $p = 0.1$, $p = 0.06$, and $p = 0.098$ respectively. There was no correlation between the pain scores of the group without

UP.416, Table 1. PSA1, PSA2, PSA3, PSA4, PSA5 Levels According to Groups

| | Group 1 (Gleason score <6) | | Group 2 (Gleason score 6) | | Group 3 (Gleason score 7) | | Group 4 (Gleason score >7) | |
|-----------|-------------------------------|----------------|------------------------------|----------------|------------------------------|----------------|-------------------------------|----------------|
| PSA mg/dl | Mean | Std. Deviation | Mean | Std. Deviation | Mean | Std. Deviation | Mean | Std. Deviation |
| PSA1 | 22.83 (14.7-31.1) | 19.8 | 16.91 (10-23.7) | 23.67 | 70.25 (51.7-88.7) | 57.08 | 70.25 (51.7-88.7) | 57.08 |
| PSA2 | 88.6 (69.6-107.5) | 45.8 | 53.84 (41.6-66) | 41.97 | 89.89 (67.8-111.9) | 68.09 | 89.89 (67.8-111.9) | 68.09 |
| PSA3 | 100.12 (80.3-119.9) | 47.9 | 70.73 (56.9-84.4) | 47.35 | 96.24 (73.5-118.8) | 69.64 | 96.24 (73.5-118.8) | 69.64 |
| PSA4 | 80.6 (61.4-99.7) | 46.3 | 57.52 (45.9-69.5) | 41.41 | 92.68 (70.4-114.9) | 68.65 | 92.68 (70.4-114.9) | 68.65 |
| PSA5 | 50.94 (34.6-67.2) | 39.50 | 34.31 (25.2-43.4) | 31.39 | 84.63 (62.7-106.5) | 67.47 | 84.63 (62.7-106.5) | 67.47 |

UP.416, Table 2. Statistical Analysis of PSA Measured Pairs According to Groups

| | Group 1 (n:24) | | | Group 2 (n:47) | | | Group 3 (n:41) | | | Group 4 (n:38) | | |
|-------------|----------------|----------------|------|----------------|----------------|------|----------------|----------------|------|----------------|----------------|------|
| | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. |
| PSA2 - PSA1 | 65.6 | 40.24 | .000 | 36.9 | 39.72 | .000 | 28.7 | 32.42 | .000 | 19.6 | 39.26 | .003 |
| PSA3 - PSA1 | 77.1 | 39.43 | .000 | 53.8 | 47.82 | .000 | 37.7 | 39.79 | .000 | 25.9 | 47.44 | .002 |
| PSA4 - PSA1 | 57.6 | 37.20 | .000 | 40.6 | 39.67 | .000 | 34.3 | 38.93 | .000 | 22.4 | 41.28 | .002 |
| PSA5 - PSA1 | 28 | 26.09 | .000 | 17.3 | 23.32 | .000 | 15.1 | 27.71 | .001 | 14.3 | 31.71 | .007 |
| PSA3 - PSA2 | 11.5 | 23.07 | .020 | 16.8 | 33.51 | .001 | 9.0 | 27.72 | .041 | 6.3 | 16.27 | .020 |
| PSA4 - PSA2 | 8.0 | 23.69 | .104 | 3.68 | 29.45 | .391 | 5.6 | 29.84 | .226 | 2.7 | 9.66 | .080 |
| PSA5 - PSA2 | 37.6 | 38.22 | .000 | 19.5 | 39.45 | .001 | 13.5 | 36.46 | .021 | 5.2 | 21.96 | .143 |
| PSA4 - PSA3 | 19.5 | 21.60 | .000 | 13.2 | 20.05 | .000 | 3.0 | 12.99 | .101 | 3.5 | 9.42 | .024 |
| PSA5 - PSA3 | 49.1 | 36.597 | .000 | 36.421 | 38.365 | .000 | 22.588 | 33.132 | .000 | 11.608 | 30.979 | .025 |
| PSA5 - PSA4 | 29.6 | 33.868 | .000 | 23.206 | 30.490 | .000 | 19.226 | 29.932 | .000 | 8.051 | 24.283 | .045 |

treatment and the age, prostate volume, PSA density and histology of the specimen.

Conclusion: Patients given analgesia after TRUS prostate biopsy tend to have significantly lower pain scores on all days than people who receive no pain treatment, thus making the use of analgesia essential. The use of analgesia for two days led to relatively lower pain scores compared to one day. There was no evidence to support the use of analgesia beyond day two as most of the patients had no pain by then.

UP418

High Incidence of the Prostate Cancer in Japanese Men with the B Blood Group

Ito M, Takeshita H, Ishioka J, Moriyama S, Yoshida S, Mastuoka Y, Numao N, Saito K, Masuda H, Fujii Y, Kihara K
Tokyo Medical and Dental University, Tokyo, Japan

Introduction and Objectives: Many studies suggest associations between the ABO blood group and the risk of various cancers. However, the relationship between the ABO blood group and prostate cancer (PCa) has never been investigated. Moreover, the B blood group population constitutes a relatively large population in Japan compared with in Western countries. The aim of this study is to assess the association between the B blood group and PCa in the Japanese population.

Materials and Methods: A retrospective analysis was performed on 1687 consecutive Japanese men who underwent prostate biopsy from January 2006 to October 2013 in our institute. Data from 1538 of these men were able to be analyzed. The association between the B blood group and PCa was examined using univariate and multivariate analyses that included age, PSA, DRE findings, family history, prostate volume, and BMI. We also examined the relationship between the ABO blood group and high-grade cancer (HGCa, Gleason score $\geq 4+3$).

Results: PCa was detected in 830 (53.9%) men, and high-grade cancer was detected in 382 (24.8%) men. The median age was 67 years, and serum PSA level was 7.7 ng/mL. The overall ABO blood group distribution was 616 (40.1%) in group A, 468 (30.4%) in group O, 309 (20.1%) in group B, 145 (9.4%) in group AB, which is consistent with the general Japanese population. The proportion of men with PCa in each blood group was 327 (39.4%) in group A, 252 (30.4%) in group O, 185 (22.3%) in group B, 66 (8.0%) in group AB ($P=0.034$). There was no significant difference between the B blood group and non-B blood group in terms of age, PSA, DRE, family history, prostate volume, and BMI. Univariate analyses indicated that the B blood group was significantly associated with PCa detection compared with non-B blood group ($P=0.019$).

Multivariate analyses indicated that the B blood group has a significant association with not only PCa (Odds ratio 1.43; $P=0.018$) but HGCa detection (odds ratio 1.38; $P=0.047$).

Conclusion: This is the first report to show the significance of the B blood group in the detection of prostate cancer.

UP421

Zinc/PSA Ratio as a Novel Biomarker for Prostate Cancer Detection

Temiz M, Cakir O, Kandirali E, Colakerol A, Küçük S, Aykan S, Tüken M, Yürük E, Semercioz A
Bagcilar Training and Research Hospital, Istanbul, Turkey

Introduction and Objectives: Although Prostate Specific Antigen (PSA) is a useful marker for detection of prostate cancer, its specificity is not sufficient. Several PSA variations were defined in order to increase the specificity of the test, but they are not much more effective than the PSA alone for detection of disease. Former studies reported that serum and prostatic tissue zinc levels decreased in prostate cancer disease. One of them confirmed that measurement of serum zinc levels improves prostate cancer detection efficiency in patients with PSA levels between 4 ng/mL and 10 ng/mL. We hypothesized that usage of the two parameters (zinc and PSA) whose serum levels are changing in prostate cancer disease together can improve detection efficiency of the disease. In this study we aimed to establish the utility of serum zinc/PSA ratio for detection of prostate cancer.

Materials and Methods: Between July 2012 and January 2013, 480 patients with elevated serum PSA levels (>2.5 ng/mL) and/or suspicious digital rectal examination were included to the study. The serum zinc, PSA, zinc/PSA and percent free PSA levels were detected. Transrectal ultrasound (TRUS) guided prostate biopsy was performed to these patients by using the standard 10 core technique. The patients were divided into prostate cancer and control cohorts according to the pathological findings. These markers were evaluated by statistically considering to their diagnostic values for prostate cancer.

Results: Although no significant difference was detected on the mean levels of the serum zinc ($127.33 \mu\text{g/dL}$ - $131.15 \mu\text{g/dL}$, $p=0.350$) levels between the two groups, there were significant differences on the serum PSA (7.62 ng/mL - 5.23 ng/mL , $p=0.0001$), percent free PSA (0.17 - 0.23 , $p=0.0001$) and zinc/PSA (150.8 - 239.6 , $p=0.0001$) median levels between the two groups. By using receive operating characteristic (ROC) analysis and comparing area under curve (AUC) levels, we did not find significant differences between serum zinc/PSA with PSA and zinc/PSA with percent free PSA levels ($p=0.209$ and $p=0.790$).

Conclusions: In the present study we established that even though there is no gain an advantage over PSA and percent free PSA, the diagnostic value of the serum zinc/PSA ratio is similar to serum PSA and percent free PSA levels according to the similar AUC levels. Due to our results, serum zinc/PSA level might be alternatively a useful marker for detection of prostate cancer and further studies are needed to confirm this topic.

UP422

Should We Take More Samples by Transrectal Ultrasound-Guided Biposy from Every Patient with Large Prostate? A Retrospective Analysis of 2079 Patients

Kandirali E, Temiz M, Colakerol A, Cakir O, Yuruk E, Aykan S, Tuken M, Binbay M, Muslumanoglu A, Semercioz A
Bagcilar Training and Research Hospital, Istanbul, Turkey

Introduction and Objectives: Transrectal ultrasound guided prostate biopsy (TRUS-bx) is the gold standard for the diagnosis of prostate cancer. Usually, 10 or 12 core biopsy sample are taken by this method. There has been a tendency to obtain more samples from large prostate to increase the cancer detection success in recent years. The aim of this study is to define the patient group who needs to be taken more biopsy samples.

Materials and Methods: We included the 2079 patients who had been undergone 10 core TRUS-bx because of their serum PSA level $>2.5 \text{ ng/mL}$ and/or suspicious digital rectal examination in this study. Prostate volumes were measured by TRUS. Patients were divided into three groups according to the PSA levels: Group 1, patients with serum PSA level $\leq 10 \text{ ng/mL}$; Group 2, patients with serum PSA level between 10 - 20 ng/mL and Group 3; patients with serum PSA level $>20 \text{ ng/mL}$. Every group was divided into two groups according to having cancer or not. Ages and prostate volumes of the patients were compared statistically.

Results: The mean age, prostate volume and serum PSA levels were 66.6 ± 8.6 years, $58.5 \pm 30.8 \text{ mL}$ and $26.5 \pm 16.4 \text{ ng/mL}$ respectively. Overall cancer detection rate was 22%. Cancer detection rates were 16%, 25%, 53% in Group 1, 2, 3 respectively. Mean prostate volume of the patients with and without cancer was $49.8 \pm 25.2 \text{ mL}$, $60.9 \pm 31.8 \text{ mL}$, respectively ($p=0.08$). There was no statistically significant difference between the groups in terms of age. There was a statistically significance on the prostate volumes between patients with and without cancer only in Group 1 ($58.2 \pm 31.5 \text{ mL}$ without cancer, $45.7 \pm 21.2 \text{ mL}$ with cancer, $p=0.019$).

Conclusions: Our results figure out that, more than 10 core samples should be taken from the patients with serum PSA level $\leq 10 \text{ ng/mL}$ and

with large prostate volume. Further study is needed to determine how many cores should be taken from different prostate volumes.

UP.423

Impact of Local Anesthesia Type on Cancer Detection Rate in Transrectal Ultrasound Guided Prostate Biopsy

Temiz M, Kandirali E, Colakerol A, Ertas K, Gonultas S, Serefoglu E, Tuken M, Cakir O, Atilla S

Bagcilar Research and Training Hospital, Istanbul, Turkey

Introduction and Objectives: Studies about the anesthesia techniques during transrectal ultrasound guided prostate biopsy (TRUS-Bx) are usually focused on pain relief. Although patient tolerance is an important issue in TRUS-Bx, cancer detection rate (CDR) must not be ignored. In this study, we compared the impact of intrarectal lidocaine gel anesthesia (IRLA) and periprostatic nerve blockade (PNB) techniques on CDR and pain relief.

Materials and Methods: A total of 422 patients who had been undergone 10 core TRUS-Bx because of elevated serum prostate specific antigen (PSA) level (>2.5 ng/mL) and/or suspicious digital rectal examination findings. Patients were divided into two groups according to the anesthesia technique applied; group1: IRLA and group2: PNB. Age, serum PSA level, prostate volume, visual analogue scale (VAS) score and pathological findings were recorded and compared statistically with chi square and unpaired t-test.

Results: The mean age, serum PSA and prostate volume and level of patients were 64.5 ± 7.9 years, 58.1 ± 27.7 cc and 12.8 ± 17.2 ng/mL, respectively. Of the patients 126/422 (29.9%) underwent TRUS-Bx by using IRLA whereas 296/422 (70.1%) by PNB technique. The mean, age, serum PSA and prostate volume were not different between the two groups. CDR was 19.8% and 25.4% in Group 1 and 2 respectively ($p=0.001$). Mean VAS score of the Group 2 (1.84 ± 0.89) was significantly lower than the Group 1 (3.62 ± 1.06) ($p=0.001$).

Conclusions: Our results revealed that PNB is superior to IRLA in terms of pain relief and

CDR. Further studies are required to confirm our findings.

UP.424

Multiparametric Magnetic Resonance Targeted Biopsy with Cognitive Guidance

Hernando Arteché A, Garde García H, Useros Rodríguez E, Paños Fagundo E, Quijano Barroso P, Martínez Benito M, Alpuente Roman C, Vallejo Desviat P, Martín García A, Moreno Reyes A, Cabrera Cabrera J, García Murga J
Hospital Central de la Defensa Gómez Ulla, Madrid, Spain

Introduction and Objectives: Multiparametric magnetic resonance imaging (mpMRI) has enabled image-guided detection of prostate cancer (PCa) suspected zones. Imaging fusion can be performed either cognitively or electronically, using a fusion device. The aim of the study was to evaluate the rates of PCa diagnosis using mpMRI targeted biopsies with cognitive guidance.

Materials and Methods: Twenty eight consecutive patients (mean age, 66.3 years; mean PSA, 8.77 ng/mL; mean prostate volume, 60.7 cc, median previous prostate biopsy, 2 [1-4]) with at least one prior negative TRUS-guided prostate biopsy and persistent suspicion of PCa were included in this study. All patients underwent mpMRI at 1.5 Tesla and PI-RADS classification system. Magnetic resonance imaging (MRI) includes a combination of high resolution T2-weighted morphological sequences and the multiparametric techniques of diffusion-weighted MRI (DWI), dynamic contrast-enhanced MRI (DCE) and proton MR spectroscopy (H-MRS). We performed mpMRI targeted biopsies with cognitive guidance to suspicious lesions under anesthesia in an outpatient surgical setting.

Results: PCa was detected in eleven patients (39.3%) who were all clinically significant. Cancer detection for patients with low, intermediate and high suspected lesions on PI-RADS were 12.5%, 28.6% and 61.5% ($p=0.055$). A total of 36.4% of cancer patients were at intermediate or high risk according to D'Amico score. No relationship was found between PI-RADS classification and PSA or

D'Amico score.

Conclusion: Mp-MRI and cognitively targeted prostate biopsy seems to be effective for the detection of clinically significant PCa in patients with previous negative TRUS-guided biopsies. PI-RADS score seems to improve diagnostic of PCa, in accordance with recent literature.

UP.425

Relation between PSA Values Measured before, during and after Prostate Biopsy and Positive Core Percentage in Prostate Cancer Patients

Goger Y, Kilinc M, Esen H
Dept. of Pathology, Faculty of Medicine, Necmettin Erbakan University Meram, Konya, Turkey

Introduction and Objectives: Prostate specific antigen (PSA) values of prostate cancer patients have been measured during and after prostate biopsy. We analyzed the relation between positive core percentage and changes in the PSA values.

Materials and Methods: Pathology results of 151 prostate cancer patients diagnosed after biopsy with TRUSG were evaluated in the present study. PSA values were measured right after right lobe and left lobe biopsies, (PSA2, PSA3), 30 minutes later (PSA4), and 24 hours later (PSA5). Fluctuations in the PSA values of cancer patients were studied. Positive core percentage in the biopsy pathology was compared in order to reveal the correlation between prostate cells cancer spread and PSA fluctuations. Patients were divided into four groups according to positive core percentage. Thus, Group 1 consisted of patients with a positive core under 25%, Group 2 between 25-50%, Group 3 between 50-75%, and Group 4 between 75-100% (Table 1). Changes in PSA1, PSA2, PSA3, PSA4, and PSA5 values among the groups have been compared using pair's difference test (Table 2). The relation between changes in the compared pairs and tumor core percentages was also evaluated.

Results: PSA1, PSA2, PSA3, PSA4, and PSA5 values of 151 prostate cancer patients were evaluated. In prostate cancer patients, there is no statistically significant difference in the

UP.425, Table 1. PSA Values of the Groups Divided According to Core Percentages with Tumor

| | Group 1: Core percentage with tumor <25% (n:39) | | | Group 2: Core percentage with tumor 25-50% (n:56) | | | Group 3: Core percentage with tumor 50-75% (n:25) | | | Group 4: Core percentage with tumor 75-100% (n:30) | | |
|------|---|----------------|-----------------|---|----------------|-----------------|---|----------------|-----------------|--|----------------|-----------------|
| | Mean | Std. Deviation | Std. Error Mean | Mean | Std. Deviation | Std. Error Mean | Mean | Std. Deviation | Std. Error Mean | Mean | Std. Deviation | Std. Error Mean |
| PSA1 | 16.54 | 26.873 | 4.418 | 30.31 | 35.666 | 4.809 | 47.93 | 47.159 | 9.626 | 78.43 | 57.549 | 10.876 |
| PSA2 | 55.51 | 44.256 | 7.276 | 69.14 | 50.137 | 6.760 | 90.19 | 51.650 | 10.543 | 91.39 | 66.035 | 12.479 |
| PSA3 | 65.11 | 46.180 | 7.592 | 87.78 | 54.002 | 7.282 | 90.30 | 51.019 | 10.414 | 95.16 | 65.100 | 12.303 |
| PSA4 | 52.89 | 41.317 | 6.792 | 79.50 | 51.783 | 6.982 | 83.48 | 52.876 | 10.793 | 93.66 | 65.907 | 12.455 |
| PSA5 | 29.10 | 28.859 | 4.744 | 57.14 | 45.973 | 6.199 | 60.67 | 49.906 | 10.187 | 88.88 | 70.550 | 13.333 |

UP425, Table 2. Comparison of the Groups Divided According to Core Percentages with Tumor

| | Group 1: Core percentage with tumor <25% (n:39) | | | Group 2: Core percentage with tumor 25-50% (n:56) | | | Group 3: Core percentage with tumor 50-75% (n:25) | | | Group 4: Core percentage with tumor 75-100% (n:30) | | |
|-------------|---|----------------|------|---|----------------|------|---|----------------|------|--|----------------|------|
| | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. | Mean | Std. Deviation | Sig. |
| PSA2 - PSA1 | 38.96 | 38.20 | .000 | 38.82 | 39.36 | .000 | 42.25 | 48.42 | .000 | 12.957 | 31.175 | .037 |
| PSA3 - PSA1 | 48.57 | 39.64 | .000 | 57.46 | 50.71 | .000 | 42.37 | 48.08 | .000 | 16.732 | 34.119 | .015 |
| PSA4 - PSA1 | 36.34 | 32.51 | .000 | 49.18 | 45.27 | .000 | 35.54 | 45.40 | .001 | 15.232 | 30.732 | .014 |
| PSA5 - PSA1 | 12.55 | 10.36 | .000 | 26.82 | 33.73 | .000 | 12.74 | 18.83 | .003 | 10.443 | 31.500 | .091 |
| PSA3 - PSA2 | 9.60 | 18.97 | .004 | 18.64 | 35.77 | .000 | 0.112 | 2.82 | .847 | 3.775 | 11.618 | .097 |
| PSA4 - PSA2 | 2.62 | 19.87 | .426 | 10.36 | 33.78 | .027 | 6.71 | 15.86 | .050 | 2.275 | 7.400 | .115 |
| PSA5 - PSA2 | 26.41 | 33.34 | .000 | 11.99 | 40.51 | .032 | 29.51 | 42.83 | .003 | -2.514 | 10.261 | .206 |
| PSA4 - PSA3 | 12.22 | 17.62 | .000 | 8.28 | 15.19 | .000 | 6.82 | 16.24 | .051 | -1.500 | 7.672 | .310 |
| PSA5 - PSA3 | 36.01 | 33.49 | .000 | 30.64 | 39.65 | .000 | 29.62 | 43.12 | .003 | -6.289 | 15.594 | .042 |
| PSA5 - PSA4 | 23.79 | 26.23 | .000 | 22.35 | 34.11 | .000 | 22.80 | 39.57 | .010 | -4.789 | 9.181 | .010 |

PSA2-PSA4 pair ($p>0.05$); yet for PSA1-PSA2, PSA1-PSA3, PSA1-PSA4, PSA1-PSA5, PSA2-PSA3, PSA2-PSA5, PSA3-PSA4, PSA3-PSA5, PSA4-PSA5 pairs there are ($p<0.05$). The higher the positive core percentages became, the higher was the proximity among the compared pairs. In the group with a core percentage less than 25% only the comparison of PSA2-PSA4 pair was statistically insignificant; however, above 50% the pair comparisons PSA2-PSA3, PSA2-PSA4, and PSA3-PSA4 were not statistically significant.

Conclusions: The higher the proximity between PSA compared pairs, the higher was the increase in the Core percentage with tumor. Tumors can be claimed to be more aggressive and widespread in patients with high proximity in their PSA compared pairs.

UP426

Is Estimated Glomerular Filtration Rate a Significant Predictor of Prostate Cancer?

Isono M, Sato A, Tsujita Y, Kuroda K, Asakuma J, Horiguchi A, Seguchi K, Ito K, Asano T
National Defense Medical College,
Tokorozawa, Japan

Introduction and Objectives: Patients with chronic kidney disease (CKD) reportedly have increased prostate cancer detection rates. We investigated whether estimated glomerular

filtration rate (eGFR), a practical marker for CKD, is a significant predictor of prostate cancer.

Materials and Methods: Reviewing the records of the 426 men who underwent transrectal prostate needle biopsy at our institution between January 2011 and November 2013 (median age 71 years, range 42–87), we classified the patients into groups A (eGFR <60 ml/min/1.73 m²) and B (eGFR ≥ 60 ml/min/1.73 m²) and used Mann–Whitney U-tests and logistic regression analyses to evaluate the predictive significance of age, total PSA, digital rectal examination (DRE) findings, prostate volume, trans-rectal ultrasound findings, number of biopsy cores, number of biopsies, and eGFR.

Results: Median total PSA was 8.582 ng/mL (range 2.664–4058), and cancer was detected in 212 patients. The cancer detection rate in Group A, 59.8%, was higher than that in Group B, 46.1% ($p = 0.0133$), but the patients in Group A were also older ($p < 0.0001$) and had a higher total PSA ($p = 0.0001$). In univariate analysis the significant predictors of prostate cancer were age ($p < 0.0001$), total PSA ($p < 0.0001$), nodule on DRE ($p < 0.0001$), prostate volume ($p < 0.0001$), hypoechoic lesion ($p < 0.0001$), number of cores ($p = 0.0009$), number of biopsies ($p < 0.0001$), and eGFR ($p = 0.0417$). In multivariate analysis the significant predictors were also age ($p = 0.0003$),

total PSA ($p = 0.0001$), prostate volume ($p < 0.0001$), and hypoechoic lesion ($p = 0.0284$) but not eGFR ($p = 0.1578$). Age was correlated with serum creatinine ($p < 0.0001$) and was also a significant predictor of eGFR < 60 ml/min/1.73 m² ($p < 0.0001$).

Conclusion: The cancer detection rate was higher in Group A, but in multivariate analysis eGFR was not a significant predictor of prostate cancer. eGFR is of limited use in predicting prostate cancer because it is significantly influenced by age.

UP427

Comparison between Transrectal Ultrasound (TRUS) Guided Biopsy of Prostate Complications in Patients Undergoing Apical versus Bi-Basal Injection of Local Anaesthetic: A Single Centre Experience
Katmawi-Sabbagh S, Payne D, Al-Sudani M, Khan Z
Kettering General Hospital, Kettering, UK

Introduction and Objectives: We performed a prospective cohort study to clarify if there is any differences in pain and other complications in apical versus bi-basal anaesthetic infiltration given prior to TRUS biopsy of prostate.

Materials and Methods: We prospectively assessed 78 patients who underwent TRUS guided prostate biopsies. Bupivacaine 0.5% (10mls)

was administered at the apex of the prostate in 38 patients and bi-basally in 40 patients. All patients were given questionnaires to fill scoring the pain from 0-2 (no, or mild pain) – 3-6 (moderate pain) and 7-10 (severe pain) both at 24 hours and 2 weeks after the procedure. Secondary end points included other complications such as bleeding, LUTS, and UTIs.

Results: At 24 hours the pain scores were fairly similar with majority of patients scoring no or mild pain (76.32% in the apical group vs. 67.5% in the bi-basal group) with slight favourability towards experiencing no pain (i.e.: scoring 0) in the apical administration group (47.37% vs. 37.50%) were documented. At 2 weeks, no patients in the bi-basal group reported any severe pain, while some did in the apical group (10.52% in the apical group vs. 0% in the bi-basal). UTIs occurred in 12.8% of patients with no statistical difference in both groups. LUTS and Bleeding from different sites were higher incidences in the bi-basal group as demonstrated in Table 1.

Conclusion: Although the route of periprostatic infiltration of Bupivacaine does not affect the total number of patients experiencing pain however, the pain severity and timing is different. More post procedural complications documented after bi-basal anaesthetic infiltration compared to apical one. Further studies are required to help us understanding these pain and other complications differences.

UP.427, Table 1.

| Complication | Apical group (%) | Bi-basal group (%) |
|----------------|------------------|--------------------|
| Hematuria | 58 | 70 |
| Hemospermia | 39.5 | 52.5 |
| Blood in stool | 13.2 | 20 |
| LUTS | 21.1 | 32.5 |

UP.429

Is Multi-Parametric MRI (MP-MRI) Alone Sufficient in Monitoring Prostate Cancer for Patients in Active Surveillance?

James A. Gooneratne A, Bhat A, Henderson A
Maidstone and Tunbridge Wells NHS Trust, Maidstone, UK

Introduction and Objectives: 2014 NICE guidelines support the use of Multi-Parametric MRI (MP-MRI) in Active Surveillance of prostate cancer after year 1 of follow-up. We investigated if this is currently justified based on audited outcome from two 3T MP-MRI scanners.

Materials and Methods: This retrospective audit assessed patients who underwent both >32 core template biopsy (reference standard) and MP-MRI between June 2010 and November 2013. Patients who had undergone both

MP-MRI and template biopsy within 6 months of each other were included (n=166). Pathology and radiological reports compared template biopsy findings with MP-MRI suggesting disease in that prostate hemisphere.

Results: We found that whilst sensitivity of MP-MRI in prostate cancer diagnosis was 88.3%, specificity was 11.1%. The positive and negative predictive values were 61.90% and 36.8% respectively. The positive likelihood ratio was 1.0.

Conclusions: Our results suggest that using MP-MRI to predict prostate cancer by hemisphere results in over-diagnosis of prostate cancer, when all MP-MRI radiologists reported. Specialist reporting and further protocol optimisation may help us to further improve results. Current MP-MRI outcomes may falsely encourage men to cease active surveillance. This is probably not justified unless histology from template biopsy demonstrates that core volume or cancer grade has increased.

UP.430

Nomogram Including Prostate Cancer Gene 3 Score and PSA Free/Total Ratio Predicts Significant Prostate Cancer in Biopsy Specimen

Ohigashi T¹, Yamashita H¹, Koshida T¹, Arai-kawa T¹, Mizuno R², Nakashima J³
¹IUHW Mita Hospital, Tokyo, Japan; ²School of Medicine, Keio University, Tokyo, Japan; ³Tokyo Medical School, Tokyo, Japan

Introduction and Objectives: The clinical value of prostate cancer gene 3 (PCA3) score for predicting tumor aggressiveness is still inconsistent. In this study, we investigated that PCA3 score and other parameter can predict 'significant carcinoma' in biopsy specimen.

Materials and Methods: Urinary PCA3 score and other parameters were measured in 63 patients with PSA ≤20 ng/ml before receiving systemic transrectal needle biopsy (at least 12 cores). Prostate cancer was detected in 37 men, of whom 10 patients were suspected as 'insignificant prostate cancer' according to the Prostate Cancer Research International: Active Surveillance (PRIAS) criteria. Urinary PCA3 score was quantified using GEN-PROBE™ PCA3 assay.

Results: According to Receiver operating characteristics (ROC) analysis, PCA3 score had the greater AUC for predicting all prostate all cancer (0.827) as well as positive core more than 2 (0.792) when compared with other PSA-associated markers. PCA 3 score was significantly higher in significant cancer patients than in others (p=0.009, Mann-Whitney test). However, ROC predicting significant cancer showed PCA3 score showed less AUC (0.731) than PSA free/total (F/T) ratio (0.801). A stepwise multivariate logistic regression analysis revealed that both PSA F/T and PCA3 score

were the independent significant predictors of significant cancers. Using these two factors, a nomogram was developed to predict significant cancers in biopsy. In ROC analysis, the value of nomogram showed a greater AUC (0.823) than any other single factors.

Conclusion: Because PSA F/T ratio and PCA3 score were measured easily from the patient's sample, this nomogram seems to be useful for men with moderately elevated PSA to introduce more precise clinical management plans, including the decision of biopsy.

UP.431

The Value of Multiparametric Prostatic MRI in the Detection of Cancer

Magalhães Pina J¹, Campos Pinheiro L¹, Lopes Dias J¹, Nobre Lucas R², Melo Rocha P¹, Meirinha A¹, Baltazar P¹, Mateus Marques R¹

¹Hospital de São José, Lisbon, Portugal; ²Hospital de Santo António dos Capuchos, Lisbon, Portugal

Introduction and Objectives: Multiparametric Magnetic Resonance Imaging of the prostate (Mp-MRI) allows the detection, localization and characterization of suspicious lesions for prostate cancer (PCa). When done prior to the diagnosis it also allows targeting of the biopsy, significantly improving the performance of the standard random prostate biopsy. Our objective is to assess the value of Mp-MRI before prostate biopsy, allowing targeted sampling of suspicious PCa lesions and comparing the results with standard randomized prostate biopsy.

Materials and Methods: Thirty patients aged 61-67 were selected with a PSA greater than 4ng/mL (PSA between 5.6 – 19.2) and with suspicious PCa lesions on Mp-MRI (Pi-RADS 3-5). A total of 75 suspicious lesions were detected. All biopsies were performed by the same Urologist (JMP), using trans-rectal ultrasound guidance and after previous visualization of MRI images. Sampling was targeted to the area considered suspicious on MRI, using a Cognitive Fusion Technique, collecting two samples per area. After that, a double-sextant standard prostate biopsy was also done in all patients. The variables used for statistical analysis were PCa detection rate and amount of cancer per sample.

Results: Twenty two patients were diagnosed with PCa. In 5 patients, cancer was only detected on targeted cores. Targeted biopsies diagnosed 23% more PCa when compared to random biopsies (p<0.001), and almost doubled the amount of cancer per sample (p<0.001). The overall PCa detection rate was 61% for all samples. A total of 360 fragments were collected from standard randomized prostate biopsy, of which 169 were positive for PCa (47%), with a median Gleason score of 6 (3+3). The median amount of cancer per sample was 25% (5%-85%). There were 105 of 150 fragments collected by cognitive fusion targeted biopsies that were positive for PCa

(70%). The median Gleason score was 7(3+4) with a median amount of cancer per sample of 45% (10%-90%).

Conclusions: Multiparametric prostatic MRI detects areas highly suspicious for PCa, allowing targeted biopsies, which increases diagnostic accuracy and improves the detection of clinically significant PCa.

UP432

The Role of MRI-Targeted Prostate Biopsy in Patients with Previous Negative Biopsies and Elevated PSA Levels

Kubota Y¹, Nagai S¹, Maeda S¹, Horie K², Uno H³

¹Toyota Memorial Hospital, Toyota, Japan;

²Gifu University Hospital, Gifu, Japan;

³Kouseiren Chu-nou Hospital, Seki, Japan

Introduction and Objectives: The efficacy of adding MRI-targeted prostate biopsy to the standard systematic 12-core biopsy in patients with previous negative biopsy results was evaluated.

Materials and Methods: Between October 2012 and February 2014, 24 patients with persistently increasing PSA levels were studied prospectively. The average age, PSA level at re-biopsy, and PSA velocity were 66 years, 11.7ng/mL, and 1.92ng/mL/year, respectively. All patients were examined with combined T2-weighted and diffusion-weighted MRI before undergoing the prostate biopsy. A total of 12 cores were obtained transperineally from each patient; 2 from the transition zone and 10 from the peripheral zone. Additional 4-core targeted biopsies were performed of the site with abnormal MRI findings. If the patients had normal MRI findings, additional 4-core biopsies were performed to the anterior part.

Results: Among a total of 24 cases, 15 patients had abnormal MRI findings (62.5%), and 9 (37.5%) had prostate cancer. The average number of positive cores at re-biopsy was 2.6; 6 cases were Gleason score 6, 2 were Gleason score 7, and 1 was Gleason score 8. For MRI, the overall sensitivity for predicting positive biopsies was 88.8%, with a specificity of 53.3%. On analysis by dividing all biopsy cores into the targeted cores and standard cores, prostate cancer was found in 12/108 (11.1%) MRI-targeted cores and 11/208 (5.2%) standard cores. In 3 cases, prostate cancers were detected only in additional MRI-targeted cores. If only the standard systematic 12-core biopsies were performed without MRI-targeted biopsies, 3 cases with prostate cancer might have been missed. One of these 3 cases was Gleason score 8.

Conclusion: We suggest that MRI-targeted biopsy be considered for the detection of prostate cancer in patients with previous negative biopsies and elevated PSA levels.

UP433

The Free Prostate-Specific Antigen Ratio as a Predictive Factor for Developing Abnormal Levels of Total Prostate Specific Antigen (>4.0 Ng/ML) in Patients with Low Total Prostate-Specific Antigen at Initial Screening

Sasaki M¹, Ishidoya S², Ito A³, Numahata K¹, Shibuya D⁴, Arai Y³

¹Yamagata Prefectural Central Hospital,

Yamagata, Japan; ²Sendai City Hospital, Sendai,

Japan; ³Tohoku University Graduate School of

Medicine, Sendai, Japan; ⁴Miyagi Cancer Society,

Sendai, Japan

Introduction and Objectives: The present study investigated whether the free prostate-specific antigen ratio (%fPSA) can be used to efficiently identify patients with low total prostate-specific antigen (PSA) at initial screening who are likely to subsequently develop abnormal PSA (>4.0 ng/mL).

Materials and Methods: Free PSA levels have been measured in addition to PSA levels in all patients undergoing prostate cancer screening at Tohoku University and the Miyagi Cancer Society since July 2001. A total of 9,522 patients underwent prostate cancer screening at our institution between July 2001 and June 2011. Among these patients, 6,374 aged 40-79 years with PSA ≤4.0 ng/mL at initial screening who had been screened at least twice were retrospectively investigated regarding changes in PSA level. The observation period was calculated from the day of initial screening to the point that PSA increased to >4.0 ng/mL or to June 2011, whichever was earlier. Patients who developed abnormal PSA (>4.0 ng/mL) levels were divided into four quartile groups based on the %fPSA at initial screening, and the percentage of patients that developed abnormal PSA over time was calculated for each group using the Kaplan-Meier method. Relative risk was also calculated using the Cox proportional hazards model.

Results: The median (range) PSA at initial screening and %fPSA were 0.86 ng/mL (0.1-4.0 ng/mL) and 28.8% (3.8-99.5%), respectively. A total of 341 patients developed abnormal PSA after a median of 34 months (range, 10-95 months). The median number of screenings was 3 (range, 2-8). The percentage of patients that developed an abnormal PSA level and the relative risk (with the >28.2% group set as 1) for each of the initial %fPSA quartile groups were as follows: <15.7% group: 31.5%, 7.0; 15.7-20.9% group: 22.8%, 3.7; 21.0-28.2% group: 18.4%, 2.3; and >28.2% group: 9.8%, 1. Significant differences were observed among the groups (p<0.0001).

Conclusion: Measuring %fPSA may facilitate the efficient identification of patients likely to develop abnormal PSA levels, as well as the establishment of suitable screening intervals.

UP434

Prospective Analysis of Emotional Distress Provoked by TRUS Guided Prostate Biopsy

Vukotic V, Filipovic N, Spasic D, Savic S

Clinical Center, Belgrade, Serbia

Introduction and Objectives: Treatment of prostate cancer has changed a lot in recent few years. Watchful waiting or active surveillance has been recognized as a valuable option in patients with low risk prostate cancer. Although there have been changes in treatment strategies, diagnostic algorithm remained the same. PSA value and digitorectal finding are main parameters on which indication for biopsy is made. PSA is the most questionable one since the threshold for biopsy is getting lower, which results in more men being biopsied, with cancer detection with low level PSA (<4ng/ml) being about 20%. Risk stratification is advisable in order to maximize the benefits of prostate cancer diagnosis and to reduce potential harms of over diagnosis. One of the potential harms which have not been adequately taken into account is the potential long term emotional distress induced by the suspicious prostate malignancy. The aim of this study was to evaluate the emotional distress in patients in whom prostate biopsy have been performed, particularly if cancer have not been found. According to our personal experience, younger, more educated and better informed men are most prone to be on long-term, emotionally affected by the biopsy, even if the result is negative.

Materials and Methods: In order to measure the psychological distress, we used a "Memorial Anxiety Scale for Prostate Cancer". Of 276 patients in whom prostate biopsy was performed in the 6-month period for elevated PSA and/or suspicious DRE, 142 were randomly selected to answer the questionnaire. In the questionnaire, along with the anxiety scale, were included items addressing demographics (age, educational level, and marital status), clinical data (PSA, previous interventions/surgeries) and the information about physical activity. Of those 142 patients, cancer was detected in 91 (Group 1), 51 patients were cancer free (Group 2). Group 3 was a control group formed by 50 patients who consulted for BPH and also answered to the questionnaire. All three groups were retested after 6 months.

Results: The "Scale" was considered reliable (Cronbach α coefficient: 0.94). At initial testing, the first group was the most anxious one. Age of the patient and PSA value were not associated with anxiety (Pearson correlation, p: 0.29). There were no statistically significant association between marital status, educational level and anxiety. Only physical activity was inversely associated with anxiety (T test, p: 0.48). On retest, after six months, in all three groups anxiety was lower which might be the result of retesting, but biopsied, cancer free

patients did not achieve the low level of anxiety as BPH patients.

Conclusion: Neither age, PSA level, nor marital status had significant impact on anxiety. In our patients, prostate biopsy did not result in major psychological distress in the six months period following biopsy although cancer free patients after biopsy maintained higher level of anxiety than BPH patients.

UP435

Age-Specific Serum Prostate-Specific Antigen Ranges among Lagos Civil Service Men without Prostate Cancer

Ikuerowo S¹, Ajala M², Abolarinwa A³, Omisanojo O¹

¹Lagos State University College of Medicine, Ikeja, Lagos, Nigeria; ²Lagos State Pathology Services, General Hospital, Lagos, Nigeria; ³Lagos State University Teaching Hospital, Ikeja, Lagos Nigeria

Introduction and Objectives: Serum prostate-specific antigen (PSA) levels increase with age and vary among different races and communities. The study was aimed at defining the age-specific ranges of serum PSA in our environment.

Materials and Methods: We evaluated the relationship between age and serum PSA levels and the age-specific reference ranges of serum PSA among civil service men in Lagos who underwent routine medical checkups. Criteria for inclusion were men who have no lower urinary tract symptoms, normal digital rectal examination and serum PSA ≤ 20 ng/ml. SPSS Statistic 21 was used for data evaluation and the mean, median, 95th percentile PSA levels were estimated. Pearson's correlation was used to examine the relationship and $p < 0.05$ was considered significant.

Results: The number of men who met the criteria for inclusion in the evaluation was 4032. The mean age was 51.6 (range 40-70) years and there was a strong correlation between serum PSA levels and age ($r = 0.097$, $p < 0.001$). PSA ranges of 0-2.5, >2.5-4.0, >4.0-10 ng/ml were found among 3218 (80%), 481 (12%), 284 (7%) and 52 (1%) respectively. The mean, median and the 95th percentile PSA for the overall group were 1.84, 1.33 and 5.2 ng/ml respectively. However the 95th percentile PSA levels for men aged 40-49, 50-59 and 60-70 years were 4.78, 5.47 and 8.93 ng/ml respectively.

Conclusion: The age-specific PSA levels among Nigerian men for each age group are higher than what was previously described for men in the Western world.

UP436

Digital Rectal Examination Is an Important Tool in Aiding Diagnosis of Prostate Cancer at an Early Stage

Walsh A, Considine S, Thomas A, Casey L, O'Brien M, Lynch T, Manecksha R

Dept. of Urology, St. James's Hospital, Dublin, Ireland

Introduction and Objectives: There is currently no standardised screening programme for prostate cancer in Europe. Risk assessment is opportunistically undertaken in consultations between patients and their general practitioner. Evaluation of the prostate gland consists of a Prostate Specific Antigen (PSA) serum level and a digital rectal examination (DRE) of the gland. DRE forms a key screening tool that can independently predict prostate cancer in the setting of a normal PSA level. The aim of this study is to evaluate the clinical usefulness of the digital rectal examination in both general practice and the urology outpatient clinics, and to ascertain the positive predictive value and sensitivity of this.

Materials and Methods: Review of prospectively collected data. We analysed patient demographics, PSA levels and DRE findings from a prospectively established database and hospital data systems from May 2009 to October 2013.

Results: Of 103 men referred over a 53 month period with a normal PSA level, 67% were referred on the basis of an abnormal DRE alone. Thirty five percent of all the men with a normal PSA were found to have prostate cancer. DRE alone was found to have a sensitivity and specificity of 81% and 40% respectively in diagnosing prostate cancer with a positive predictive value of 42%. Seventy six percent of these had high grade disease on TRUS biopsy pathology.

Conclusion: DRE is a key part of the assessment of prostate cancer risk. In itself it can independently identify patients at risk of prostate cancer, with a substantial proportion of these having significant disease requiring treatment. In this study we have reinforced that we should not be reassured by normal PSA levels in the setting of suspicious clinical findings.

UP437

Impact of Initial PSA Level on Biochemical Failure Free Survival (BFFS) following Radical Prostatectomy for the Prostate Cancer Detected in Community-Based PSA Mass Screening Program in Saga, Japan

Tokuda Y, Udo K, Tobu S, Kakinoki H, Nanri M, Kurata S, Ichibagase Y, Takahara K, Noguchi M, Uozumi J
Saga University, Saga, Japan

Introduction and Objectives: Key points of our screening program are, as the first step, recruitment of participants who undergo PSA test, and the second step, examination including prostate biopsy for the participants with PSA over 4.0 ng/ml. Patients in whom prostate cancer was detected with PSA over 10 ng/ml is not rare in our screening program. The present study was conducted to assess the impact of pre-operative PSA level, gray zone or over 10 ng/ml, on

biochemical failure following radical prostatectomy for the patients detected in the screening program.

Materials and Methods: Clinico-pathological characteristics and BFFS were evaluated in 190 patients who underwent radical prostatectomy in our hospital between 2003 and 2014. The data were analyzed in two groups according to the preoperative PSA level, 4.0 to 10 ng/ml (gray zone group) and 10 to 20 ng/ml (PSA > 10 group). The median follow-up was 50.2 months (1 to 120.8). There was no cancer related death in either group during the follow-up period.

Results: Clinical stage, pathological stage, Gleason score, extra prostatic extension rate, positive margin rate and seminal vesicle invasion rate of PSA > 10 group were statically higher than those of gray zone group. As a matter of course BFFS rate of gray zone group was higher than that of PSA > 10 group. When the patients with Gleason score 8 or more were excluded, there was no statistical difference in BFFS rate between the two groups. Our data clearly demonstrated that pre-operative PSA > 10 is one of the critical PSA failure risk. Two thirds of patients with PSA 10-20 ng/ml showed Gleason score 7 or less in biopsy. Those patients might be cured by radical prostatectomy as effectively as gray zone PSA cases. However, we cannot identify those low risk patients without prostate biopsy. Early detection and early treatment is still important in cancer screening program.

Conclusion: To establish much more effective PSA mass screening program, aggressive encouragement to the second step examination including prostate biopsy for the participants with abnormal PSA greater than 4.0 ng/ml is required.

UP438

Prognostic Significance of Very-Low and Low Risk Prostate Cancer of NCCN Guideline in Japanese Population

Takizawa I¹, Ohori M¹, Ohno Y¹, Yoshioka K¹, Nakashima J¹, Aoyagi T², Tachibana M¹
¹Tokyo Medical University, Tokyo, Japan; ²Tokyo Medical University Ibaraki Medical Center, Ibaraki, Japan

Introduction and Objectives: To validate the prognostic significance of NCCN guideline for prostate cancer, especially very low and low risk cancer.

Materials and Methods: We studied the 751 patients with clinical stage T1-3N0M0 prostate cancer who were treated with radical prostatectomy at Tokyo Medical University during 12 years between 2001 and 2012. Patients with neoadjuvant treatments were excluded. Patients were divided into 4 groups of NCCN guideline to assess its prognostic significance by Kaplan-meier analysis and correlation with pathologic features.

Results: Overall, a total of 212 patients (28.2%) had a biochemical recurrence (BCR)

with 69±2% non-BCR rate at 5 years after a surgery. Of the 751 patients, 45, 137, 350 and 219 patients were categorized into very low, low, intermediate or high risk group of NCCN guideline. Non-BCR rates at 5 years for each risk group were 86.9%, 81.1%, 75.1% and 49.0%, respectively. While non-BCR for patients with very low and low risk were significantly better than those with intermediate or high risk cancer ($p<0.0005$), there was no significant difference between patients with very low and low risk ($p=0.56$). In the analyses of radical prostatectomy specimens, the frequencies of non-confined cancer ($\geq pT3$), positive surgical margins and Gleason score ≥ 7 cancers were significantly increased as the risk group was advancing ($p<0.0005$ for all). But the frequencies of $>pT3$ cancer and positive surgical margins were not significantly different between patients with very low and low risk cancer ($p=0.223$ and $p=0.161$), respectively). **Conclusion:** In general, NCCN guideline provides the useful information for clinical decision to select initial treatment. However, it seems to be difficult to recommend the initial treatment such as active surveillance to patients with very low and low risk cancer solely based on the distinction of very low and low of NCCN guideline.

UP439

Targeted Prostate Biopsy with Diffusion-Weighted Magnetic Resonance Imaging Could Improve the Prostate Cancer Detection in Comparison with the Systemic 12-Cores Prostate Biopsy in Patients Who Had PSA Level Lower Than 10 ng/ml: Initial Experiences

Lee D¹, Nam J¹, Kim T¹, Koo K², Bang W³, Lee S¹, Chung M¹

¹Pusan National University School of Medicine, Yangsan, South Korea; ²Yonsei University College of Medicine, Seoul, South Korea; ³College of Medicine, Hallym University, Anyang, South Korea

Introduction and Objectives: To compare pathologic results of prostate biopsy between systemic 12-core prostate biopsy and targeted prostate biopsy using diffusion weighted magnetic resonance imaging (DW-MRI) in patients with PSA level lower than 10 ng/ml.

Materials and Methods: Prospectively, a total of 34 patients underwent 3 Tesla multiparametric MRI prior to first round prostate biopsy between January 2014 and April 2014. Using DW-MRI, a single urologist performed a targeted prostate biopsy. After a targeted prostate biopsy, a systemic 12-core prostate biopsy was performed consecutively. We compared the pathologic results of biopsy cores according to the two biopsy procedures: the positive core rate, mean cancer core length and mean cancer core percentage.

Results: Mean PSA was 7.1 ng/ml. Among 34 patients, 23 patients had an abnormal DW-MRI. A total of 408 cores using a systemic 12-cores biopsy and 63 cores using a targeted biopsy were performed. Positive core rate was 14.2% (58 of 408 cores) and 52.3% (33 of 63 cores), respectively ($p<0.001$). In comparison between a systemic 12-core biopsy and a targeted biopsy, mean cancer core length and mean cancer core percentage were significantly higher in a targeted biopsy. They were 3.43mm, 27.8% and 5.03mm, 43.3%, respectively ($p=0.017$ and $p=0.005$). However, the biopsy Gleason score was not different according to biopsy methods ($p=0.800$). However, there were no differences in biopsy Gleason scores according to biopsy method ($p=0.800$).

Conclusions: Our experiences showed that a targeted prostate biopsy based on DW-MRI could improve prostate cancer detection in patients with PSA levels lower than 10 ng/ml. Further studies are warranted to investigate patients for whom MRI prior to prostate biopsy may confer advantage.

UP440

The Prognosis of Patients with a Negative Real-Time Virtual Sonography-Assisted Targeted Prostate Biopsy Using MR-US Fusion

Ikeda A¹, Miyagawa T², Tanaka K¹, Komine M¹, Tsutsumi M¹

¹Hitachi General Hospital, Hitachi City, Japan; ²Saitama Medical Center Jichi Medical University, Saitama, Japan

Introduction and Objectives: In our institute, Real-time virtual sonography (RVS)-assisted targeted prostate biopsy is performed in patients with suspected prostate cancer on magnetic resonance imaging (MRI). The cancer detection rate is approximately 60%. The accuracy of the targeted biopsy and interpretation of the MRI findings remains an issue. We retrospectively studied the clinical courses of patients with negative RVS-assisted targeted prostate biopsy.

Materials and Methods: The 69 patients with suspected prostate cancer on MRI and negative RVS-assisted targeted biopsy between February 2007 and August 2013, who were followed-up for over 1-year post biopsy, were included. The changes in the PSA levels, rate of prostate rebiopsy, and presence/absence of cancer were evaluated.

Results: The median (range) age, PSA level, and prostate volume of the patients were 67 (46 - 84) years, 9.3 (4.2 - 46) ng/ml, and 49 (18 - 141) ml, respectively. Of the 69, 15 (21%) underwent prostate rebiopsy. Of the 15, all underwent repeat MRI, and 10 had had their first targeted biopsy before 2009; 14 had positive MRI findings, and 9 had positive targeted biopsy. One patient underwent systematic

transperineal biopsy, because the previous MRI findings were no longer found; the biopsy was positive. Sixteen patients were treated for prostatic hyperplasia. Patients with prostate cancer had significantly higher PSA velocities than those with negative results (mean 3.68 ng/ml/year vs. 0.1 ng/ml/year, $p<0.001$) and significantly smaller volumes (mean 36.7 ml vs. 58.7 ml, $p=0.015$).

Conclusions: For patients with high PSA velocities and small gland volumes, repeat MRI and rebiopsy must be considered despite a negative first RVS-assisted targeted biopsy. Two-thirds of the patients undergoing rebiopsy had had their first biopsy shortly after the introduction of RVS-assisted biopsy in clinical practice. It is necessary to improve the accuracy of targeted biopsy and our ability for MRI interpretation.

UP441

Evaluation (-2)Prostate-Specific Antigen and Prostate Health Index for Detection Aggressive Prostate Cancer

Lalic N¹, Vukovic I², Glisic B³, Djordjevic D², Durutovic O², Milenkovic-Petronic D², Micic S⁴

¹Faculty of Pharmacy, Novi Sad, Serbia; ²Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia; ³Center of Medical Biochemistry, Clinical Center of Serbia, Belgrade, Serbia; ⁴Policlinic Uromedica, Belgrade, Serbia

Introduction and Objectives: tPSA alone has a low specificity and cannot identify aggressive PCa. Beckman Coulter developed a "prostate health index" (ϕ) which combines tPSA, fPSA and [-2]proPSA ($\phi=[-2]proPSA/fPSA \times \sqrt{tPSA}$). The clinical performance of ϕ index for the detection of aggressive PCa was evaluated from 2011 to 2013.

Materials and Methods: A total of 127 patients with tPSA values between 1.8–10 ng/mL, 64 with, 63 without PCa, underwent ≥ 10 core biopsies. Serum samples were prepared prior to DRE. The serum concentrations of tPSA, fPSA and [-2]proPSA were measured with Beckman Coulter Access immunoassays on an Access2. The Prostate Health Index was calculated using the following formula: $(p2PSA/fPSA) \times \sqrt{tPSA}$. ROC curves were plotted to compare the clinical performances of tPSA, %fPSA and ϕ for the detection of PCa. Detection PCa aggressivity was performed on 64 patients for which the biopsy Gleason score information was available. Based on this information, the patients were grouped as "aggressive PCa" for patients with biopsy Gleason score of 7 and above ($GS \geq 7$) or "less aggressive" biopsy Gleason score of 6 ($GS < 7$).

Results: Of 127 patients, PCa was diagnosed in 64 (50.3%). Median tPSA (6.54ng/mL (BPH) vs. 5.89 ng/ml (PCa); $p=0.852$) and p2PSA (14.75 vs. 15.17 pg/ml) did not differ between

groups; conversely, median fPSA (1.14 vs. 0.77 ng/mL; $p < 0.001$), %fPSA (0.16 vs. 0.12; $p < 0.001$), and ϕ (32.60 vs. 48.78; $p < 0.001$) did differ significantly between men without and with PCa. Evaluation of area under ROC curve (AUC) analysis showed that ϕ (AUC=0.706) provided significantly ($p < 0.001$) better clinical performance relative to f/tPSA (AUC=0.616) or tPSA (AUC=0.502) in predicting PCa. Significantly higher median values of ϕ were observed for patients with Gleason score ≥ 7 (ϕ =52.5.0) as compared with patients with Gleason score < 7 (ϕ =39.60, $p < 0.001$). The proportion of aggressive PCa (Gleason score > 7) increased with the ϕ score. **Conclusion:** The results of this study show that ϕ index compared with tPSA or %fPSA demonstrated superior clinical performance in detecting PCa in patients with tPSA 1.8 – 10.0 ng/mL and is better able to detect aggressive PCa.

UP442

Visualization of Human Prostate Cancer Using Infrared Radiation

Khushivadze A¹, Kochiashvili D¹, Chovelidze S¹, Koberidze G¹, Papava V¹, Partskhvania B², Petriashvili G², Sulaberidze T²

¹Tbilisi State Medical University, Tbilisi, Georgia;

²Georgian Technical University, Tbilisi, Georgia

Introduction and Objectives: The use of near-infrared radiation (NIR) is a promising approach for biomedical imaging of human prostate cancer. The technique has so far been employed only in animal models. The objective of our experiment was to study the possibility of using infrared radiation for imaging of prostate cancer in humans.

Materials and Methods: For our study, we used gross prostate specimens obtained from radical prostatectomy and transvesical prostatectomy. A total of 30 experiments were performed. The prostate was illuminated with small light emitted diode working in the infrared region (850 nanometers), placed in the prostatic urethra from the apical side. Infrared light passed through the prostate tissue and was captured by infrared CCD camera. The experiment was carried out in a dark environment in order to avoid any artifact. Transrectal ultrasound guided biopsy was performed to locate prostate cancer prior to radical prostatectomy. Surgery specimens were then studied with standard histopathological techniques to pinpoint the cancerous lesions of the prostate.

Results: Prostate cancer was positively identified in 17 patients. Prostate carcinoma appeared on infrared images as dark spots against a relatively light background and represents areas with high optical dense. In all 17 cases, the location of infrared-detected lesions fully corresponded to that identified by biopsy and histopathology. Thirteen samples obtained through transvesical prostatectomy were diagnosed as

benign prostatic hyperplasia. Infrared images of those 13 prostate specimens were evenly illuminated, with no dark spots.

Conclusion: In this study, we demonstrated the feasibility of identification and visualization of human prostate cancer using a novel infrared imaging technique. Further research is warranted to improve real-time detection of carcinoma and to move this technology toward its potential clinical application.

UP443

Repeat Prostate Biopsy in High Clinical Suspicion of Prostate Cancer: Revisiting an Old Dilemma

Marques V, Tavares da Silva E, Castelo D, Figueiredo A, Rolo F, Mota A
Dept. of Urology and Renal Transplantation, Coimbra's Hospital and University Centre, Coimbra, Portugal

Introduction and Objectives: The aims of this study are to characterize the population of patients undergoing repeat transrectal prostate biopsy (TRPB) after an initial negative result and to assess the impact of the indications for rebiopsy in the final diagnosis of prostate cancer (PCa).

Materials and Methods: Between January 2005 and February 2013, a total of 2853 patients were submitted to a first diagnostic TRPB; 496 of them did at least 1 repeat TRPB (maximum of 5 rebiopsies per patient), giving a total of 665 rebiopsies. Patient's age, total and free PSA levels, number of biopsies and fragments, histological result, indication for biopsy and complications were recorded retrospectively.

Results: The average age was 71 years (range 47 to 92). The overall CaP detection rate for the first TRPB was 36.0% and for repeat TRPB was 34.7%. The most frequent indication for rebiopsy was a persistently elevated PSA, followed by the presence of multifocal high-grade papillary intraepithelial neoplasia (HiPIN) in the first TRPB. The average age of patients with PCa wasn't significantly different from those without PCa (74.3 vs. 70.4; $p = 0.797$). There was a significant difference between PSA levels from patients with and without PCa (69.6 vs. 20.92; $p = 0.013$). However only a PSA value greater than 20ng/mL was related with a positive result in a repeat TRPB ($p = 0.047$). Free/total PSA ratio didn't differ from patients with and without PCa ($p = 0.358$) and a ratio inferior to 0.20 didn't correlate with a superior PCa detection rate ($p = 0.509$). In addition to PSA level, the only indication for rebiopsy associated with the presence of PCa was the existence of multifocal HiPIN on a previous biopsy ($p = 0.037$). The number of fragments obtained increased on every rebiopsy, however it didn't correlate with a superior detection rate of PCa ($p = 0.256$).

Conclusion: The repetition of a TRPB after a first negative result reveals the presence of PCa

in about a third of the cases. PSA levels above 20ng/mL and the presence of multifocal HiPIN in previous biopsies seem to be robust indications for performing a repeat TRPB.

UP444

Prostate Cancer Detection in the Community

Chinegwundoh F¹, Allchorne P¹, Ancheta J¹, Trevatt P¹, Reams E²

¹Barts Health NHS Trust, London, UK; ²Kings College, London, UK

Introduction and Objectives: Men are traditionally reluctant to go to their GP. It is postulated that this may be part of the reason for late presentation of prostate cancer in the UK. Prostate cancer has ethnic variability. Coupled with the finding of excess prostate cancer mortality in Newham, London (an area of ethnic diversity), the idea arose as to setting up a clinic in the community, which men could access without a referral. We sought to determine if we could detect prostate cancer at an earlier stage than would normally be the case.

Materials and Methods: A one-year pilot clinic was set up in a community setting in Newham. This was supported by the Department of Health and involved close collaboration between several agencies. The clinic ran twice a week. It was staffed by doctors and nurse specialists. It was a free drop-in service for prostate evaluation. No appointment was necessary. PSA testing was offered. Results were given to the men and their GPs. Those with elevated PSA were offered prostate biopsy. This was a first of its kind in the UK.

Results: A total of 328 men attended. Most men attended for a "check-up". They had not accessed their GP (family doctor). Eighty four percent of men had a PSA test. Fifty six percent had a flow test. Client satisfaction was high. Fifty six men were referred into secondary care, mostly with moderate LUTS or raised PSA. Nine men were diagnosed with early prostate cancer. Ordinarily, 30% of our new prostate cancers in hospital are metastatic.

Conclusion: Such a community based setting offers an alternative access to healthcare in the UK. The men found the setting acceptable and easy to access. They appreciated the professionalism of the staff. It appealed to all cultures. Good numbers of men were reached. We demonstrated that prostate cancer may be detected earlier than might otherwise be the case in the absence of a national screening programme. The cost was not prohibitive.

UP445

Nomogram for Prediction of Prostate Cancer with Serum Prostate-Specific Antigen Less than 10 ng/mL

Ha H¹, Lee J¹, Chung M¹, Shin D¹, Bang S²

¹Pusan National University Hospital, Busan, South Korea; ²Dept. of Urology, Daedong General Hospital, Busan, South Korea

Introduction and Objectives: Although prostate-specific antigen (PSA) is a very useful screening tool, prostate biopsy is still necessary to confirm prostate cancer (PCA). However, it is reported that PSA is associated with a high false-positive rate and prostate biopsy also has various procedure-related complications. Therefore, the authors have devised a nomogram, which can be used to estimate the risk of PCA, using available clinical data for men with a serum PSA less than 10 ng/mL.

Materials and Methods: Prostate biopsies were obtained from 2,139 patients from January 1998 to March 2011. Of them, 1,171 patients with a serum PSA less than 10 ng/mL were only included in this study. Patient age, PSA, free PSA, prostate volume, PSA density and percent free PSA ratio were analyzed.

Results: Among 1,171 patients, 255 patients (21.8%) were diagnosed as PCA. Multivariate analyses showed that patient age, prostate volume, PSA and percent free PSA had statistically significant relationships with PCA ($P < 0.05$) and were used as nomogram predictor variables. The area under the (ROC) curve for all factors in a model predicting PCA was 0.759 (95% CI, 0.716-0.803).

Conclusion: This nomogram is useful to determine prostate biopsy in patients with a serum PSA less than 10 ng/mL.

UP446

Transrectal Ultrasound Guided Prostate Biopsy (TRUS-Bx) following 3-Tesla Magnetic Resonance Imaging (MRI) in Men with Elevated Prostate Specific Antigen: Preliminary Results

Kaya E, Akgun V, Alp B, Yalcin S, Ebiloglu T, Kocaoglu M, Yildirim I
Gulhane Military Medical Academy, Ankara, Turkey

Introduction and Objectives: We would like to expose the efficiency of 3-Tesla Magnetic Resonance Imaging (MRI) prior transrectal ultrasound guided prostate biopsy (TRUS-BX) in men with elevated prostate specific antigen (PSA).

Materials and Methods: Between January 2013 and August 2013 we performed 3-Tesla MRI and TRUS-BX in 21 men with elevated PSA on blood test in our polyclinic. We performed 12 core prostate biopsy in all cases. All specimens were examined by the Pathology Service of our institute.

Results: The mean total blood PSA level was 10.37 ng/ml (3.9-34.21) and the mean blood free PSA level was 2.05 ng/ml (0.15-9.14). The comparison of TRUS-BX and MRI results for the patients are given on the Table 1. The sensitivity and specificity of MRI were calculated as 90% and 72.7%, respectively. And positive predictive value and negative predictive value were calculated as 90% and 88.8%, respectively. The

UP446, Table 1.

| | TRUS-BX + | TRUS-BX - | TOTAL |
|---|-----------|-----------|-------|
| MRI+ | 9 | 3 | 12 |
| MRI- | 1 | 8 | 9 |
| TOTAL | 10 | 11 | 21 |
| MRI +: shows significant signs that indicate prostate cancer MRI -: shows no significant signs that indicate prostate cancer (normal signs) TRUS-BX +: pathology result is prostate cancer, ASAP or high grade PIN TRUS-BX -: pathology result is normal, BPH, prostatitis or inflammation | | | |

validity of the test was calculated 80.9%. We also assess the value enhancement patterns and diffusion weighted imaging features of the neoplastic tissues. In contrast to pertinent literature we determined different contrast enhancement patterns for prostate cancer. We had pathology result of pathology as "ASAP" and another pathology result as "high grade PIN" in our 21-men-patient group.

Conclusion: One of the pathology result of TRUS-BX was adenocancer; gleason 6 (3+3) although his MRI was not positive for cancer. On the other hand 3 patients' pathology results were negative for neoplasia although they had positive MRI results. We are planning to re-biopsy for the 3 patients with negative in contrast to MRI results and for 2 patients that have "ASAP" and "high grade PIN" pathology results. Our results will be published following to completion of the study.

UP447

One-Day Admission after TRUS-Guided Biopsy Can Decrease the Incidence of Biopsy-Related Complications

Jin B, Jung H, Park J, Kim D
Catholic University of Daegu, Daegu, South Korea

Introduction and Objectives: Although the outpatient-based TRUS-guided biopsy is usually performed safely, the occurrence of fatal complications can not be avoided. In this study, we evaluated the possibility of avoidance of fatal complications and decrease the incidence of biopsy-related complication rates in one day admission after biopsy in compared with outpatients schedule.

Materials and Methods: The patients were divided into two groups (Group 1: outpatients, Group 2: inpatients). Total 471 patients enrolled (Group 1: 333, Group 2: 138) and average age was 59.3 (range 48-92). All of the patients had medicated with 2nd generation cephalosporin for 3days and NSAIDs injection for one day before biopsy. Group 1 patients went back home in 2 hours after biopsy if there no vital sign changes and severe hematuria or rectal bleeding. Group 2 patients were admitted for 24 hours after biopsy. The incidence and duration of complications such as gross

hematuria, rectal bleeding, hematochezia, hemospermia, fever, diarrhea, sepsis and vital sign changes were assessed.

Results: The most common complication was hematuria (21.4%) and hematochezia (4.46%), hemospermia (1.7%), fever (1.06%), severe rectal bleeding which needed rectal tamponade (0.64%), hemorrhagic shock (0.42%), diarrhea (0.21%), sepsis (0.21%) were followed. The incidence of hematuria was significantly ($p=0.031$) decreased in Group 2. The severe complications such as hemorrhagic shock, sepsis and severe rectal bleeding which needed admission observed only in Group 1. Patients who had hypertension history showed more complications associated with aspirin premedication.

Conclusions: The incidence of biopsy-related minor complications and fatal complications could be decreased in inpatients group. So, One-day admission after TRUS-guided biopsy can be a safe way to decrease biopsy-related complications.

UP448

The Practicality of Unilateral Prostate Biopsy Procedures on the Dominant Prostate Tumor Side Determined by Magnetic Resonance Imaging in Elderly Patients with High Levels of Serum Prostate-Specific Antigen: Retrospective Study

Park K, Kim S, Kim Y, Huh J
Jeju National University, Jeju, South Korea

Introduction and Objectives: To examine the possibility of reducing the number of cores per prostate biopsy in elderly patients with high levels of prostate-specific antigen (PSA), without significantly lowering the detection rate of prostate cancer in patients.

Materials and Methods: From May 2009 to April 2013, 216 men with levels of PSA greater than 20ng/ml underwent prostate biopsies were retrospectively reviewed. A total of 177 individuals diagnosed with prostate cancer underwent magnetic resonance imaging (MRI) after biopsy. With the help of MRI, the laterality of the dominant tumor burden in patients with prostate cancer was determined for the sake of comparing the results of dominant-side unilateral transrectal-ultrasound guided biopsy (DSUB) with conventional sextant biopsy (SB) procedures.

Results: The mean age and PSA were 79.5 years, 81.3ng/ml, and the overall diagnostic rate of biopsies was 81.9% (177/216). Of these 177 men, 12 men (6.8%) with less than 29 ng/ml of PSA did not have any cancer cells according to unilateral core biopsies. However, in patients with levels of PSA greater than 30 ng/ml, cancer cells were discovered by DSUB (without SB). The rate of negative cores per prostate biopsy was significantly reduced in virtual DSUB (8.5%) in comparison to SB (22.3%) ($P < 0.001$).

Conclusion: Following the study, we believe possibility that unilateral biopsies on the dominant side of the prostate in elderly patients with high levels of PSA could reduce the number of useless cores per biopsy without significantly reducing the detection rate of prostate cancer in patients.

UP449

Prospective Randomized Controlled Study to Assess the Effect of Perineal Region Cleansing with Povidone Iodine before Transrectal Needle Biopsy of the Prostate on Infectious Complications

Taher Y¹, Akdogan B¹, Ozen H¹, Unal S², Dogan S¹

¹Dept. of Urology, Faculty of Medicine, Hacettepe University, Ankara, Turkey; ²Dept. of Infectious Diseases, Faculty of Medicine, Hacettepe University, Ankara, Turkey

Introduction and Objectives: To analyze the effect of perineal region cleansing with povidone iodine (PI) before transrectal needle biopsy of the prostate on infectious complications.

Materials and Methods: From 01/07/2013 to 05/01/2014, 120 consecutive patients with a PSA > 2.5 ng/ml or abnormal digital rectal examination were prospectively randomized to perineal cleansing (60) with PI or no cleansing (60) before their first transrectal needle biopsy of the prostate. Patients in both groups received 3 gr fosfomycin po the day before and after the procedure and 1 gr amikacin iv infusion 30 minutes before the procedure. The patients characteristics, comorbidities, PSA, fPSA, f/t PSA ratio, total prostate and transitional zone volume and thus PSA density (PSAD) and transitional zone PSA density (TZPSAD), previous history of antibiotic usage in the last three months, previous history of transrectal needle biopsy of the prostate, hematuria, hematospermia, rectal bleeding, the pathological results and the primary end point which was infectious complications were evaluated in both groups.

Results: There was no difference in baseline evaluation between groups, except mean volume of the prostate was larger in PI group (63.9 vs. 52.8 cc, $p=0.016$). Infectious complications were observed in 4 patients (3.3%); 1 (1.7%) in PI group and 3 (5%) in control group ($p=0.309$). Regarding the other parameters and

pathological results, there was no significant difference between two groups.

Conclusions: Although there was a trend for reducing infectious complications in patients with perineal cleansing with PI before ultrasound guided transrectal needle biopsy; this difference has not reached significant level in this study. Further studies with larger number of patients are needed to clarify the effect of perineal cleansing with PI.

UP450

What Are the Governance Issues of the Risk of Sepsis following Transrectal Biopsy of the Prostate?

Thompson P¹, Nemade H², Reynard J¹, Wang W³, Sheehan S¹

¹King's College Hospital, London, UK; ²Basildon and Thurrock University Hospital, Basildon, UK; ³Beijing Tongren Hospital, Beijing, China

Introduction and Objectives: Data on the septic complications of transrectal prostate biopsy raises important questions. The risk of septicaemia was first recognised in the 1980s. Prophylactic antibiotic regimens continue to evolve due the increasing number of biopsies, and antibiotic resistance. This study follows the path of infection and tested the most widely accepted antibiotic regimen, and reviews the safety of the procedure.

Materials and Methods: The prospective study was performed in the UK and China with the same protocol. Patients had pre-biopsy urinalysis and post-biopsy blood cultures at 5 min, 1 h and 24 h. The prophylactic antibiotics were ciprofloxacin, continued for 3 days, and metronidazole. The patients were advised of the potential risks of the procedure and informed consent was obtained.

Results: Of 137 patients studied, 11.7% had positive blood cultures; 3.7% had fever and sepsis (2 patients required intensive care treatment), and 8% were bacteraemic.

Conclusion: Our reported sepsis rate of 3.7% is substantiated elsewhere. The concept of a numeric threshold for disclosing risk is legally outdated. For a diagnostic procedure surely this is a "significant risk which would affect the judgment of the reasonable patient." (Lord Woolf, 1999: Butterworths Medico-Legal Reports 48:118). As a responsible profession we have a responsibility to advise our patients of the true rate of septic complications of the biopsy and inform them that alternative procedures such as the transperineal approach exist, and have a lower risk of infection.

UP451

The Evaluation of Prostate Cancer Prevention Trial (PCPT) Risk Calculator and Logistic Regression Based Models for Predicting Prostate Cancer in Chinese Population

Na R¹, Zhang N¹, Wu Y¹, Liu S¹, Jiang H¹, Xu

J², Ding Q¹

¹Fudan Institute of Urology and Dept. of Urology, Huashan Hospital, Fudan University, Shanghai, China; ²Center for Cancer Genomics, Wake Forest School of Medicine, Winston-Salem, USA

Introduction and Objectives: The performances of Prostate Cancer Prevention Trial (PCPT) risk calculator and other tools for prostate cancer (PCa) prediction in Chinese population were poorly understood.

Materials and Methods: The men who underwent prostate biopsy from 2006 to 2013 in our institute were recruited in this study. Clinical informations were collected before and after biopsy. We built two risk predicting models (Table 1) based on our previous study for a Chinese biopsy population (n=1059) from 2006 to 2010. The performances of PCPT risk calculator and the models for predicting PCa were then evaluated in this population, and in a new biopsy population (n=535) from 2011 to 2013 as well.

Results: Significant differences of age, prostate volume, prostate specific antigen (PSA) level, free-PSA (fPSA) level, results of digital exam (DRE), and results of transrectal ultrasound (having nodule or not) were observed between PCa group and non-PCa group (all $P < 0.001$). Model1 and Model2 (Table 1) outperformed PCPT risk calculator for predicting prostate cancer in the entire first group of population, and in the stratified population (with PSA level from 2.0ng/mL to 20.0ng/mL). In addition, Model1 performed better than Model2 when predicting PCa. However, no significant differences were observed when predicting high grade PCa (Gleason score>7). When we evaluate the models in a second group of population, Model1 and Model2 performed equally to PCPT risk calculator (Table 1).

Conclusion: Family history and race information were two important factors in PCPT risk calculator. However, patients in China do not have enough information about family history for the reason of poor health care policies in the past decades, which might weaken the utility of PCPT risk calculator for predicting PCa. The logistic regression based models might be a potentially better risk calculator for predicting PCa in Chinese population, however, should be further evaluated.

UP452

Increasing Prostate Biopsy Cores Results in an Increase in the Morbidity? A Prospective Study

Plata Bello A, Concepcion Masip T
Dept. of Urology, University Hospital of Canary Islands, La Laguna, Tenerife, Canary Islands

Introduction and Objectives: For the time being prostate biopsy is the only procedure to confirm the diagnosis of prostate cancer. Since the sextant protocol proposed by Hodge newer schemes with more intensive sampling have

been used. We investigated two different biopsy schemes with different core numbers to establish the effect on morbidity.

Materials and Methods: We prospectively conducted a descriptive, non-randomized study in a single institution during one year (2011) to evaluate the safety, morbidity and complication rates of two different numerical schemes of transrectal ultrasound guided prostate biopsies. Data from 490 patients who were grouped according to the number of cores taken into extended scheme (13-19 cores) and saturation scheme (≥ 20 cores). All patients received local anesthesia at the level of periprostatic nerves and perioperative antibiotic prophylaxis with a

single dose of 100 mg Tobramycin and ciprofloxacin (500 mg/d starting the evening before biopsy for a total of 3 days). Antiplatelet therapy wasn't interrupted. Morbidity was assessed by a personal and telephone interview done 5 days and 4 weeks after the procedure. All patients signed the informed consent.

Results: A total of 254 patients were grouped in the extended scheme while 236 patients underwent saturation biopsy. Detailed results were shown in Table 1.

Conclusions: This study shows that extended or saturation schemes in prostate biopsy are safe procedures with rare major complications. Similar rates of complications were observed

in both groups. Using a more aggressive strategy (intensifying sampling) in prostate biopsy doesn't add morbidity to the procedure.

UP453

Cost/Benefit Analysis of Magnetic Resonance Imaging (MRI) Prior to Prostate Biopsy in Management of Patients with Raised Prostate Specific Antigen (PSA) in a District General Hospital

Taylor L, Omar A, Datta A, Almallah F, Ganta S

Walsall Manor Hospital, Walsall, UK

Introduction and Objectives: Artefact changes

UP451, Table 1. Evaluation of the Area under the Receiver Operation Curves (AUCs) of Different PCa Risk Predicting Models

| First group of population† | | | | | | | | |
|------------------------------------|---------------------------------|----------|----------|--|---|----------|----------|-------------------------|
| All (n=1059, PCa=480, non-PCa=579) | | | | | | | | |
| AUC Lower95% Upper95% | PCa (n=300) vs. non-PCa (n=382) | | | | High grade PCa (n=113) vs. others (n=585) | | | |
| | | | | P-value* | AUC | Lower95% | Upper95% | P-value* |
| | PCPT** | Model1** | Model2** | | | | | |
| | 0.860 | 0.926 | 0.901 | 0.889 2.57×10⁻⁴ 0.034 | 0.723 | 0.627 | 0.819 | 0.798 0.725 |
| | | | | | | 0.707 | 0.889 | 0.27 |
| | | | | | | 0.619 | 0.832 | 0.98 |
| PSA=2.0ng/mL-20.0ng/mL (n=) | | | | | | | | |
| AUC Lower95% Upper95% | PCa (n=91) vs. non-PCa (n=305) | | | | High grade PCa (n=26) vs. others (n=381) | | | |
| | AUC | Lower95% | Upper95% | P-value* | AUC | Lower95% | Upper95% | P-value* |
| | PCPT | Model1 | Model2 | | | | | |
| | 0.682 | 0.834 | 0.778 | 0.619 0.786 0.720 | 0.802 | 0.840 | 0.815 | 0.761 0.804 0.773 |
| | | | | 0.745 1.72×10⁻⁴ 0.027 | | | | 0.844 0.875 0.857 |
| | | | | | | | | 0.18 0.67 |
| Second group of population† | | | | | | | | |
| All (n=535, PCa=254, non-PCa=281) | | | | | | | | |
| AUC Lower95% Upper95% | PCa (n=143) vs. non-PCa (n=182) | | | | High grade PCa (n=43) vs. others (n=98) | | | |
| | AUC | Lower95% | Upper95% | P-value* | AUC | Lower95% | Upper95% | P-value* |
| | PCPT | Model1 | Model2 | | | | | |
| | 0.820 | 0.868 | 0.824 | 0.775 0.830 0.779 | 0.765 | 0.734 | 0.796 | 0.680 0.644 0.714 |
| | | | | 0.866 0.906 0.869 | | | | 0.850 0.824 0.878 |
| | | | | 0.12 0.91 | | | | 0.62 0.61 |
| PSA=2.0ng/mL-20.0ng/mL | | | | | | | | |
| AUC Lower95% Upper95% | PCa (n=62) vs. non-PCa (n=144) | | | | High grade PCa (n=7) vs. others (n=53) | | | |
| | AUC | Lower95% | Upper95% | P-value* | AUC | Lower95% | Upper95% | P-value* |
| | PCPT | Model1 | Model2 | | | | | |
| | 0.727 | 0.811 | 0.734 | 0.652 0.750 0.661 | 0.550 | 0.666 | 0.588 | 0.360 0.440 0.383 |
| | | | | 0.803 0.872 0.807 | | | | 0.740 0.892 0.792 |
| | | | | 0.090 0.90 | | | | 0.44 0.79 |

†The first group of population were the people who received prostate biopsy from 2006 to 2010 in our institute, and the PCa predicting model1 and model2 were built based on this group of population. The models were tested in the second group of population that received prostate biopsy from 2011 to 2013 in our institute.

*the P-value referred to the significance between Model1 or Model2 and PCPT risk calculator

** PCPT=Prostate Cancer Prevention Trial risk calculator; Model1 were built in the rule of logistic regression model based on age, result of digital rectum exam, prostate volume, PSA, %fPSA and result of ultrasound; Model2 were built in the rule of logistic regression model based on age, result of digital rectum exam, PSA and %fPSA.

UP.452, Table 1.

| | EXTENDED SCHEME (N=254) | SATURATION SCHEME (N=236) |
|-----------------------------------|----------------------------|------------------------------|
| NO COMPLICATIONS | 59.84%(N=152) | 61.01% (N=144) |
| TOTAL COMPLICATIONS | 39.77% (N=102) | 38.98% (N=92) |
| Bleeding Complications | 15.68% (N=40) | 20.76 (N=49) |
| Hematuria | 7.87% | 9.71% |
| Rectal bleeding | 4.72% | 7.62% |
| Hematochezia | 0.78% | 0.84% |
| Hematospermia | 0.78% | 1.27% |
| Urethral bleeding | 1.57% | 1.27% |
| Infective Complications: | 18.62% (N=48) | 11.44% (N=27) |
| Dysuria | 4.72% | 3.38% |
| Frequency | 5.11% | 3.81% |
| Fever | 3.93% | 1.69% |
| UTI symptomatic | 3.54% | 2.11% |
| Orchitis | 0% | 0% |
| Prostatitis | 1.57% | 0.42% |
| Obstructive Complications: | | |
| Acute urinary retention | 3.9% (N=10) | 2.54% (N=6) |
| Major Complications | 1.58% (N=4) | 4.23% (N=10) |
| Sepsis | 0.78% | 1.69% |
| Gross Hematuria | 0.39% | 1.69% |
| AUR+ sepsis | 0.39% | 0.84% |
| Clavien-Dindo Modified | | |
| I | 34.64% | 32.20% |
| II | 5.51% | 6.77% |

in the prostate following prostate biopsy necessitate delaying staging MRI of the prostate by 6 to 10 weeks following biopsy, often causing undue anxiety in the patient and lengthening pathway from investigation to treatment. This can be avoided by performing MRI of the prostate prior to prostate biopsy. This study aimed to investigate the cost/benefit of performing pre-biopsy MRI prostate in patients managed at a district general hospital.

Materials and Methods: Retrospective analysis of 50 patients who underwent MRI of the prostate prior to trans-rectal ultrasound (TRUS) guided prostate biopsy for investigation of raised PSA. We used cognitive fusion of MRI with diffusion-weighted imaging was performed immediately prior to TRUS biopsy. Data were collected on demographics, length of time to complete all investigations, biopsy and MRI results and waiting time for MRI.

Results: Positive biopsy found in 30% of patients who underwent pre-biopsy MRI. Pre-biopsy MRI resulted in significant shortening of patient pathway (from investigation to treatment) for investigation of raised PSA.

Conclusion: Pre-biopsy MRI of the prostate can help to reduce the length of the patient pathway for investigation of raised PSA. But leads to over investigation of patients with subsequent negative biopsies and increased overall waiting times for MRI. Identifying those patients who are most likely to benefit from rapid

completion of the patient pathway may aid in the diagnostic yield and reduce over investigation and overall waiting times.

UP.454

MR Based Monitoring of Men on Active Surveillance for Prostate Cancer: The Importance of a Visible Lesion

Petrides N^{1,2}, Allen C¹, Pushwani S¹, Emberton M^{1,2}, Moore C^{1,2}

¹University College Hospitals, London, UK;

²University College, London, UK

Introduction and Objectives: Repeat PSA, digital rectal examination, and standard trans-rectal biopsy are recommended for follow-up on active surveillance. The use of MR imaging may allow men with stable disease to avoid a biopsy. The natural history of MR appearances during a period of active surveillance is not well understood. We report the findings of repeat MRI in men with low and intermediate risk prostate cancer.

Materials and Methods: Clinical and radiological databases were searched for men who had undergone more than one prostate MRI, and the electronic hospital record was then searched to find men who had not undergone any treatment in the intervening period. Baseline scans were assessed to identify men with a discrete lesion (PIRADS score 4/5 or higher) and follow-up imaging assessed to identify those who had

shown progression on MR over time.

Results: We identified 256 men with over 650 cumulative follow-up years. Of those 256, 106 men (41.4%) had a visible lesion at baseline, of whom 47 men (44%) showed evidence of progression during follow-up. Of 150 men with no lesion, 21 (14%) showed progression over time (odds ratio for progression in men with a lesion 4.9).

Conclusion: Men with a lesion on MRI at the outset of active surveillance are more likely to show progression than men with no lesion, and require close monitoring. A classification system for change on MRI would be useful in future research.

UP.455

Does Saturate Enough? Transrectal Biopsy for Detection and Localization of Prostate Cancer Index Lesion: A Comparison Study between Saturation Biopsy and Specimen Analysis

Orczyk C^{1,2}, Doerefler A¹, Bazille C³, Le Gal S¹, Genty M⁴, Desmonts A¹, Tillou X¹, Bensadoun H¹

¹Dept. of Urology, University Hospital of Caen, Caen, France; ²ISTCT, CERVOXY, Caen, France;

³Dept. of Pathology, University Hospital of Caen, Caen, France; ⁴CEFEMIS, Montpellier, France

Introduction and Objectives: Index lesion should be defined as the one within the gland that leads cancer prognosis. With perspective of active surveillance (AS) and focal therapy (FT), localize within the gland this index lesion is critical. While TRUS saturation biopsy (TRUS SB) is controversial for raw detection, increased sample of tissue may improve qualitative information about cancer foci. Our objective is to assess the ability of TRUS SB to detect and localize the index lesion confronted to radical prostatectomy specimen.

Materials and Methods: We retrospectively reviewed the charts of patients who underwent radical prostatectomy (RP) after TRUS SB at our institution in 2010 and 2011. TRUS SB with 22 cores is offered for baseline biopsy at our center. Each core was sent to pathology in separate jars. Biopsy analysis included core-by-core analysis and a report using a scheme with tissue length and cancer extension. We clustered the contiguous positive cores and allocated them as part of the same lesion. We compared SB results to step section analysis of RP specimen. Specimen index lesion was the one with extra prostatic extension, if not the largest. Correlation was done on a sextant basis. We performed logit regression to find a model to predict true positive for index detection lesion and localization.

Results: We included 50 patients, median age 62 years old, median PSA 6.64ng/ml, mean Gleason score 6.1. Median number of cores was 22, with median cancer involvement of 9mm

by patient. Sensitivity (Se) for detection and localization of index lesion as such was 87% and positive predictive value (PPV) of 61%. At univariate regression, true positive was associated with number of positive cores ($p=0.009$); number of positive core for index lesion ($p=0.045$) and total length of cancer ($p=0.001$). Only number of positive cores found to be predictive of IL at multivariate analysis (Odds Ratio= 1.47).

Conclusions: Intrinsic performance was high with sensitivity of 87% for detection and localization of the index lesion, with moderate PPV. Albeit promising, our statistical model failed to establish a profile for true positive detection and then establish enough confidence in IL detection and localization.

UP456

Disease-Free Survival after Low-Dose Brachytherapy: Postimplant Dosimetry as Prognostic Factor

Apolikhin O, Sivkov A, Oschepkov V, Roshin D, Koryakin A

Research Scientific Institute of Urology, Moscow, Russia

Introduction and Objectives: An important criterion for the quality control of seed implantation is postimplant dosimetric analysis (PDA), usually performed on the basis of CT on day 30 after brachytherapy. We analyzed the 5-year disease-free survival, depending on the calculated postimplant dose in a single center with more than 10-year experience.

Materials and Methods: The research was focused on 117 patients who met the following criteria: low or intermediate risk PCa (D'Amico criteria), with follow-up of 5 years or more, who underwent PDA after implantation. Patient age range: 52 to 76 years. Radioactive sources used - 125I, with the summary dose of - 120-160 Gray. According to the results of PDA patients were divided into two comparable groups, the first group with prostate D90 > 140 Gray, the second <140 Gray.

Results: The groups are equal in terms of preoperative PSA and clinical stage distribution. A 5-year biochemical disease-free survival (bDFS) in the first group was achieved in 96.4% with cT1, and with cT2 - 82.9%. In the second group - 85.2% and 71.9% respectively. Overall disease-free survival in patients with D90>

140 Gy was significantly higher than in group of < 140 Gy: 93.2% and 77.6%, respectively. Evaluation of complications showed that the most frequent symptom was dysuria, which was registered significantly more in Group I.

Conclusions: The 125I brachytherapy is an effective radical treatment of low- and intermediate-risk PCa, with good results of disease-free survival and biochemical control and small number of complications. PDA plays a great role in the prognosis of treatment results, along with the stage of disease, tumor grade, and preoperative PSA. Biochemical control is better in patients with higher D90, although the frequency of dysuria in these patients is also higher.

UP457

Comparative Analysis of Pathological and Biochemical Outcomes after Radical Prostatectomy in Patients Eligible for Different Active Surveillance Criteria

Veliev E^{1,2}, Sokolov E¹, Loran O¹, Petrov S³, Bogdanov A^{1,2}

¹Russian Medical Academy of Postgraduate Education, Moscow, Russia; ²S.P. Botkins Hospital, Moscow, Russia; ³A.M. Nikiforov All-Russian Center of Emergency and Radiation Medicine, Saint Petersburg, Russia

Introduction and Objectives: Appropriate selection of patients for active surveillance (AS) is still controversial. The purpose of the study is to evaluate and compare pathological results and biochemical outcomes after radical prostatectomy (RP) in patients meeting strict Johns Hopkins (JH) and more extensive Royal Marsden Hospital (RMH) AS criteria.

Materials and Methods: We retrospectively reviewed our institutional database of 1367 patients treated with RP between 1997 and 2010. There was 74 patients eligible for JH criteria (clinical stage cT1c, PSA density ≤ 0.15 , postbiopsy Gleason sum ≤ 6 , ≤ 2 positive biopsy cores in at least 10-core prostate biopsy, $\leq 50\%$ single core involvement) and 263 patients eligible for RMH criteria (clinical stage cT1c-T2a, prostate-specific antigen level ≤ 15 ng/ml, postbiopsy Gleason sum $\leq 3+4$, $\leq 50\%$ positive biopsy cores) were included in the study. Median age was 64 years (IQR: 58-69; 59-68) in both groups ($p=0.71$). Median PSA level was 5.9 ng/ml (IQR: 4.8-6.7) and 6.9 ng/ml (5.4-8.58) ($p<0.001$), median follow-up period

after surgery 65 months (IQR: 53-82) and 67 months (IQR: 52-90) ($p=0.63$) in JH and RMH groups respectively. Pathological results after RP were analyzed for negative features (Gleason upgrading, upstaging, positive surgical margins) and compared. Kaplan-Meier method was used to evaluate 5-year biochemical recurrence-free survival (BCRFS).

Results: Extracapsular extension was found in 2.7% and 4.9% ($p=0.33$), seminal vesicle invasion in 1.4% and 2.6% ($p=0.43$), N+ disease in 1.4% and 0.4% ($p=0.49$), positive surgical margins in 6.8% and 7.2% ($p=0.56$) of patients in JH and RMH groups. Postoperative Gleason sum upgrading was found in 6.8% and 9.1% ($p=0.49$). In total, negative pathological features were found in 14.8% of patients in JH group and 17.1% of patients in RMH group ($p=0.31$). Also, 5-year BCRFS was 95.7% and 95.8% ($p=0.41$) respectively.

Conclusion: Pathological and biochemical results after RP in patients meeting JH and RMH criteria are suboptimal, with no significant differences between two groups. Precise preoperative examination and staging are essential before selection of candidates for active surveillance.

UP458

Validation of the Contemporary Epstein Criteria for Insignificant Prostate Cancer in African Men

Abbar M, Janane A, Dakkak Y, Ghadouane M, Ameer A

Dept. of Urology, Mohammed V Military Hospital of Rabat, Rabat, Morocco

Introduction and Objectives: The Epstein criteria represent the most widely used scheme for prediction of clinically insignificant prostate cancer (PCa). However, they were never validated in European men. We assessed the rate of unfavorable prostate cancer (Gleason 7-10 or non-organ-confined disease) in a cohort of 34 men who fulfilled the Epstein clinically insignificant PCa criteria.

Materials and Methods: Between 2001 and 2012, 240 men underwent radical prostatectomy at a single academic European institution. Of those, 366 fulfilled the contemporary Epstein clinically insignificant PCa criteria. Analyses targeted the rate of pathologically unfavorable prostate cancer, defined as either Gleason sum 7-10 or non-organ-confined disease, or a combination of these characteristics in patients with clinically insignificant PCa.

Results: Gleason 7-10 prostate cancer at radical prostatectomy was found in 8 patients (23.5%) with clinically insignificant PCa. In addition, 2 (25%) of the 88 patients harbored non-organ-confined disease. Consequently, the contemporary Epstein criteria for clinically insignificant PCa were inaccurate in 23.5% of patients.

Conclusion: The Epstein clinical insignificant PCa criteria may underestimate the true nature

UP.456, Table 1.

| | Group I >140Gy | Group II <140Gy | p |
|------------------|--------------------|--------------------|------------|
| Preoperative PSA | 7.3ng/ml \pm 2.6 | 7.9ng/ml \pm 2.4 | $p > 0.05$ |
| T1 | n = 6 (10.2%) | n = 7 (12.1%) | $p > 0.05$ |
| T2 | n = 53 (89.8%) | n = 51 (87.9%) | $p > 0.05$ |
| 5-year bBFS | 93.2% | 77.6% | $p < 0.05$ |
| Dysuria | 34 (58.6%) | 25 (42.4%) | $p < 0.05$ |

of prostate cancer in as many as 23.5% of African patients. Therefore, caution is advised when treatment decisions are based solely on these criteria.

UP459

Is Radical Prostatectomy a Suitable Treatment Option for an Age of 75 Years or Older Prostate Cancer Patient?

Ko W¹, Ryu J², Jung T², Yoo T³, Kim D⁴, Oh T⁵, Byun S⁶, Kim S⁷, Kwon D⁸

¹National Health Insurance Service Ilsan Hospital, Gyeonggi-Do, South Korea; ²Seoul Veterans Hospital, Seoul, South Korea; ³Eulji University School of Medicine, Seoul, South Korea; ⁴Catholic University of Daegu School of Medicine, Daegu, South Korea; ⁵Samsung Changwon Hospital, Changwon, South Korea; ⁶Seoul National University Bundang Hospital, Gyeonggi-Do, South Korea; ⁷Ajou University School of Medicine, Gyeonggi-Do, South Korea; ⁸Chonnam National University Medical School, Chonnam, South Korea

Introduction and Objectives: We studied to identify whether radical prostatectomy is a suitable therapeutic method for an age of 75 years or older prostate cancer patient.

Materials and Methods: We studied retrospectively the patients who received the RP for prostate cancer at six institutions from 2005 to 2012. Patients were divided into 2 sub-populations; 65-69 years (younger group) and 75 years or older (older group) at time of surgery. We included patients who were followed up for 12 months at least. The patient clinical characteristics, the pre- and postoperative data, the pathological data, and postoperative complication were compared between the two groups. The overall, specific and biochemical recurrence-free survival were analyzed with chi-square test, logistic regression analysis, and Kaplan-Meier method.

Results: A total of 168 patients were 65-69 years of age and 89 patients were ≥75 years of age. Postoperative Gleason score (≤6: 26.8% versus 15.7%, ≥8: 8.9% versus 25.8%, in younger and older groups, respectively, $p=0.001$) and postoperative ECOG performance status (grade 0: 67.3% versus 50.6%, grade 2: 5.4% versus 15.7% in younger and older groups respectively, $p=0.006$) were statistically significant difference. There was no statistically significant difference in peri-, postoperative complications (rectal injury, impotence, bladder neck contracture, inguinal hernia) except urinary incontinence. At 6 months after RP 69.0% (younger group) versus 41.6% (older group) of patients were continent and at 12 months 85.7% versus 76.4% were continent, respectively. In multivariate logistic regression analysis, the factors such as old age, preoperative ECOG performance status ≥ grade 1, postoperative impotence affected urinary

incontinence after RP. After a median follow-up of 36 months (younger) and 40 months (older group), the prostate cancer-specific mortality was 0% and 2.2% ($p=0.151$) and the biochemical recurrence was 11.3% and 12.4% ($p=0.839$), respectively.

Conclusions: Although the urinary incontinence rate was higher in the older group, the RP in patients 75 years old or older is a suitable treatment procedure with a limited complication rate, excellent oncologic outcome and survival rate similar to 65-69 years of age.

UP460

Patients Electing for Active Surveillance (AS) following Tranperineal Template Guided Saturation Biopsy (TTSB)

Demonstrate a Low Rate of Progression and Conversion to Radical Treatment

Sarkar D, Ekwueme K, Simpson H, Parr N
Wirral University Teaching Hospital, Upton, Merseyside, UK

Introduction and Objectives: AS is advocated for low risk PCa, although around 30% of patients are reported to 'progress' by 2yrs, possibly suggesting that a proportion of tumours are initially characterised incorrectly. In 2007 we established a TTSB service and now review the outcome of patients electing for AS following this procedure, hypothesizing that the 'progression rate' should be less.

Materials and Methods: Of 511 patients referred from a wide range of hospitals, 325 were followed-up locally. PCa was diagnosed in 184/325 (56.6%). Of these, 59 elected for AS, with median age 63(47-75) yrs and median PSA 8(4-15) ng/ml. Gleason grades were 3+3(n=40) and 3+4(n=19), with clinical stages T1c (n=54) and T2a (n=5). Fifty-eight underwent pre TTSB MRI. Our follow-up protocol consisted of 3 monthly PSA and DRE, offering repeat MRI and repeat TTSB at 18-24 months.

Results: At median follow-up of 34(2-78) months, 28 patients have undergone repeat MRI, with none progressing radiologically. Thirteen out of 59 patients accepted repeat TTSB, mainly due to PSA progression, 3(5%) demonstrating histological progression and since undergoing radical treatments.

Conclusion: Patients characterised as suitable for AS following TTSB demonstrate a low rate of progression. For some patients the high risk of progression reported for AS after conventional biopsy acts as a deterrent to acceptance of AS as a management strategy. These individuals should be offered 'upfront TTSB'. A significant proportion of patients on AS decline repeat TTSB when PSA and imaging are stable.

UP461

Correlation between Biopsy Gleason Score and Radical Prostatectomy Specimens

Abbar M, Janane A, Dakkak Y, Ghadouane M,

Ameur A

Dept. of Urology, Mohammed V Military Hospital of Rabat, Rabat, Morocco

Introduction and Objectives: Gleason scores, as determined by 18-gauge core needle biopsies (NB), were compared with both Gleason scores and the pathological staging of corresponding radical prostatectomy (RP) specimens. The goal was to evaluate the clinical implication and the prognostic impact of these discrepancies.

Materials and Methods: Records of 234 consecutive patients undergoing a radical retro pubic prostatectomy between 2001 and 2012 were reviewed. In total, all our patients were enrolled, all of whom had been diagnosed with adenocarcinoma by transrectal needle biopsies using an 18-gauge automated spring-loaded biopsy gun.

Results: Grading errors were greatest with well-differentiated tumors. The accuracy was 18 (23%) for Gleason scores of 2-4 on needle biopsy. Of the 108 evaluable patients with Gleason scores of 5-7 on needle biopsy, 84 (78%) were graded correctly. All of the Gleason scores of 8-10 on needle biopsy were graded correctly. Fifty-four of 162 patients (33%), with a biopsy Gleason score of < 7 had their cancer upgraded to above 7. Tumors in 18 patients (60%) with both a Gleason score < 7 on the needle biopsy and a Gleason score of 7 for the prostatectomy specimen were confined to the prostate.

Conclusion: The potential for grading errors is greatest with well-differentiated tumors and in patients with a Gleason score of < 7 on the needle biopsy. Predictions using Gleason scores are sufficiently accurate to warrant its use with all needle biopsies, recognizing that the potential for grading errors is greatest with well-differentiated tumors.

UP462

Psychological Aspects of Active Surveillance for Japanese Men with Low Risk Localized Prostate Cancer

Takeda H, Nakano Y, Narita H
Dept. of Urology, Tōsei General Hospital, Aichi, Japan

Introduction and Objectives: To investigate, the prevalence of anxiety and depression in patients with localized prostate cancer managed by active surveillance (AS), compared with those receiving immediate treatment, as active surveillance is a relatively new approach to managing this disease, designed to avoid 'unnecessary' treatment, but it is unclear whether the approach contributes to psychological distress, given that men are living with untreated cancer.

Materials and Methods: We've recommended AS for 95 patients with low risk prostate cancer, in the 8 years from 2006 to 2014 as a result 65 patients enrolled in AS. This Department's eligibility criteria for AS were: 1) T1-T2aNOm0, 2) GS<7 3) PSA<10 ng/ml, 4) 10 or more biopsies and 2 or fewer positive cores, and 5) cancer

occupying 30% or less of positive cores. Sixty five men with low risk PCa meeting the study entry criteria. Comparative analysis was done to analyze anxiety scores assessed by use of the Hospital Anxiety and Depression Scale (HADS) & an 11-item modified Memorial Anxiety Scale for Prostate Cancer (MAX-PC) questionnaire.

Results: At 8 years, 65 patients who underwent AS at this hospital had an overall survival rate of 95% and a prostate cancer-specific survival rate of 100% (mean age: 71.63±6.48 years, mean follow-up: 33.63±18.14 months). Patients remained under AS at a rate of 72.05% at 3 years and 67.54% at 5 years. Twenty four patients who received delayed definitive treatment after AS had an OS rate and DSS rate of 100% at 5 years. Analyses indicated that higher anxiety scores were significantly associated with younger age (<70 years old) ($P<0.01$) and delayed definitive treatment ($P<0.01$), but not with management by active surveillance ($P=0.38$).

Conclusion: Comparison of patients receiving Continuous AS and deferred definitive treatment revealed significant differences in their HADS and MAX-PC. Active surveillance for Japanese men with low risk localized prostate cancer was associated with greater psychological distress in younger age (<70 years old) and delayed definitive treatment after AS.

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Comparison of Outcomes in the Initial 100 Patients' Cohorts between Laparoscopic Radical Prostatectomy and Robot-Assisted Radical Prostatectomy: Experiences by Single Surgical Team in One of High Volume Centers in Japan

Yukari K¹, Iwata T¹, Kawauchi K¹, Koizumi F¹, Edamura K¹, Kusaka N², Saika T¹

¹Hiroshima City Hospital, Hiroshima, Japan;

²Tsuyama Central Hospital, Tsuyama, Japan

Introduction and Objectives: In Japan, modalities of radical prostatectomy are changing drastically due to the recent innovation of Japanese social health insurance system to surgeries for prostate cancer (PCa). We compared installabilities between Laparoscopic radical prostatectomy (LRP) and for robot-assisted radical prostatectomy (RALP) by a retrospective study for each initial 100 patients treated by single team.

Materials and Methods: From June 2011, we initiated LRP and operated 100 cases to June 2012. And from September 2012, we initiated RALP and operated 100 cases to September 2013. All the surgeries were done by a single surgical team conducted by a director of the department of urology. Peri-surgical outcomes, pathological findings, continence status and biochemical recurrence-free survival, were compared.

Results: Preoperative parameters (age, PSA, Gleason score) were similar in both RALP and LRP groups. Operative time (169 vs. 215 minutes) and estimated blood loss (minimal vs.

77 ml) were reduced in RALP vs. LRP. Peri-operative complications in RALP appeared to be minimal with no cases of intra-operative open conversion; on the other hands, severe complications, including 3 rectal injuries, were observed in 6 cases of LRP. Although not statistically significant, there was a lower positive margin rate in organ-confined (pT2) disease (7.2%, RALP vs. 16%, LRP). Continence at 3 months was 92% following RALP as opposed to 64% after LRP. Biochemical recurrences in short follow-up period (median 8 vs. 16 months) were observed 5% in RALP as opposed 16% in LRP.

Conclusions: The transition to RALP from the introduction of LRP in a very short period has yielded superior operative, oncologic, and functional results.

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Treatment Decision-Making in Patients with Clinically Localized Prostate Cancer Diagnosed after Concurrent or Subsequent Non-Prostate Malignancy: To Treat or Not to Treat? How to Treat?

Lu K, Wang H, Lin V, Yu T

E-Da Hospital and I-Shou University, Kaohsiung City, Taiwan

Introduction and Objectives: With awareness and understanding of prostate cancer (PCa) and increasing widespread usage of PSA screening worldwide, the incidence of prostate cancer was steadily increasing. Subsequently, concurrent or metachronous non-prostate malignancy diagnosed prior to PCa were not uncommon clinical scenarios. How to justify the treatment strategy and avoid over-treatments in these particular populations were extremely challenging issues to urologist. The aim of the study is to investigate the treatment of choice and clinical outcome in PCa patients with concurrent or metachronous non-prostate cancer, and analyze

potential factors implicated in decision-making for clinical patient management.

Materials and Methods: This is a retrospective observational cohort study. From April 2004 to September 2013, all PCa patients diagnosed with concurrent or subsequent to non-prostate malignancy were enrolled. The clinical data were collected retrospectively by chart review and the length of follow-up was calculated up until the last clinical visit or death. The results were correlated with clinico-pathological parameters.

Results: The primary analysis included 826 PCa patients. Sixty-two (7.51%) PCa patients were diagnosed with concurrent or subsequent to non-prostate malignancy, including 39 clinically localized PCa patients. The common sites of non-prostate malignancy was urotract (16 from urinary bladder and 7 from upper urinary tract), colon-rectal area (8 from rectum and 8 from colon), and liver (11). Radiotherapy (11) or brachytherapy (9) was most adopted for the treatment of choice for patients with organ-confined prostate cancer. Tumor biology of non-prostate malignancy, disease-free duration of prior malignancy, and physician preference were implicated in treatment of choice.

Conclusion: Conservative treatment or minimally invasive modalities were mostly adopted options for PCa patients with concurrent or subsequent to non-prostate cancer in concerning on specific tumor biology and disease-free period. Further prospective study needs to be conducted to investigate how to stratify risks and optimize treatment strategy in these populations.

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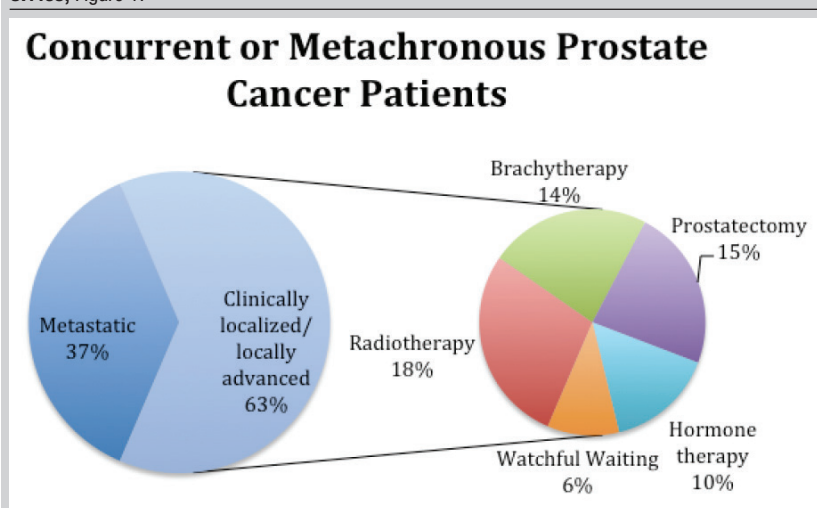
Results of Radical Prostatectomy in Patients with Locally-Advanced Prostate Cancer

Matveev V, Volkova M, Cherniaev V

Russian Cancer Research Center, Moscow, Russia

Introduction and Objectives: To assess results of radical prostatectomy in patients with

UP465, Figure 1.



locally-advanced prostate cancer.

Materials and Methods: Medical data of 158 consecutive patients with locally-advanced prostate cancer who underwent radical prostatectomy from 2002 to 2012 were analyzed. Median age was 60.0 years. Median PSA before surgery was 13 (1-81) ng/ml. Biopsy Gleason sum was ≥ 7 in 70 (44.3%) cases. Clinical T category cT1 was diagnosed in 14 (8.9%) cT2 – in 119 (75.3%), cT3 – in 25 (15.8%) patients; no regional metastases were diagnosed in any of the cases. All patients underwent retro-pubic radical prostatectomy. Extended pelvic lymphadenectomy (ELAE) was performed in 28 (17.7%) cases. Median follow-up was 50 (12-155) months.

Results: Pathological T category pT3a was recognized in 96 (60.8%), pT3b – in 48 (30.4%), pT4 – in 14 (8.9%); pN+ – in 34 (21.5%) cases. Gleason score ≥ 7 occurred in 83 (52.5%) specimens. Perineural invasion was identified in 133 (84.2%), angiolymphatic invasion – in 103 (65.2) cases. Postoperative treatment was administered in 39 (24.5%) patients (radiotherapy (≥ 68 Gy) – 30 (18.9%) (immediate – 19 (12.0%); delayed – 11 (6.9%)); delayed hormone therapy – 9 (5.6%)). Five-year overall, cancer-specific, recurrence-free and PSA-failure-free survival was 92.3%, 95.1%, 72.0% and 55.2%, respectively. Independent unfavorable prognostic factors for survival without PSA-failure were initial PSA ≥ 10 ng/ml ($p=0.004$), lack of ELAE ($p=0.02$), pN+ ($p=0.04$) and absence adjuvant treatment ($p=0.017$).

Conclusion: Radical prostatectomy with ELAE followed by adjuvant therapy is associated with satisfactory outcome.

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Long-Term Impact on Erectile Function after Brachytherapy for Prostate Cancer in Men Younger Than 55 Years

Campos Pinheiro L, Magalhães Pina J, Varregoso J, Vicente R, Ugidos J, Teixeira N, Cunha G, Oliveira e Silva T, Matos Ferreira A
British Hospital Lisbon XXI, Lisbon, Portugal

Introduction and Objectives: The purpose of this study is to assess potency preservation among patients with less than 55 years old, with clinically localized and locally advanced PCa submitted to prostate brachytherapy alone, or in association with external beam radiotherapy (EBRT) and/or androgen deprivation therapy (ADT); to assess the effect of clinical, treatment and dosimetric parameters on penile erectile function.

Materials and Methods: Eighty six patients with T1-T3 PCa were treated with BT (I125, prescription dose 160 Gy) alone (87.2%) or combined with 6 months of ADT (5.8%). 3.5% of patients were treated with BT (I125, prescription dose 110 Gy) associated with EBRT (45 Gy). BT, EBRT and 9 months of

ADT was used in 3.5% of patients. Patients completed a self administered Brief Sexual Function Inventory (BSFI) questionnaire before implant and at each follow-up visit. Erectile item ranges from 0-12. Potency was considered when score ≥ 4 (minimum score which allows for satisfactory erections) with or without the use of iPDE5. Only initially potent patients were included. Patients with biochemical failure were excluded. A minimum follow-up of 1 year was required. Biological effective dose (BED) scale was used, in order to standardize the radiation dose administered by implant only or combined with EBRT. Potency rate was calculated using the Kaplan-Mayer method and log-rank test. Cox regression was used for multivariable analysis. Statistical significance was considered when $p < 0.05$.

Results: Overall 48-month potency preservation was 88.4%. This rate was 90.7% for BT alone, 80.0% for BT with ADT, 66.7% for BT with EBRT and 66.7% for the trimodal treatment. There was no statistical difference associated with treatment type ($p=0.530$). Patients < 50 years ($n=26$) treated with implant alone had a potency preservation rate of 95.5%. BED, hormone therapy, Gleason score, prostate volume, tumoral staging, pre-treatment PSA value showed no correlation with post-treatment potency preservation both on univariate and multivariate analysis.

Conclusion: There are few studies that evaluate prostate cancer patients with less than 55 years in the long-term. Our study evaluates 86 young patients and shows excellent erectile function preservation following brachytherapy, with an overall 90.7% potency preservation, 48 months after treatment. In patients with less than 50 years, 95.5% remain potent.

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Oncologic Outcomes in Low and Intermediate-Risk Prostate Cancer Treated with Brachitherapy: 8 Years of Follow-Up Balbontin F

Clinica Santa Maria, Santiago, Chile

Introduction and Objectives: The objective of this study is to report the rates of disease-free survival (DFS), cause-specific survival (CSS), and overall survival (OS) after low-dose-rate (LDR) prostate brachytherapy (PB).

Materials and Methods: Data were collected from 172 consecutive patients with prostate cancer who received LDR-PB as monotherapy with iodine 125 since 2005. Patients had low-risk (72%) or intermediate-risk (28%) disease according to National Comprehensive Cancer Network Criteria. The prescribed minimal peripheral dose was 144 Gy. Patients were followed-up with PSA every 3 months during the first year every 6 months during the second year and then annually. The Phoenix threshold was used to define biochemical relapse.

Results: The median patient age at implantation was 61 years. The median follow-up was 37 months. OS and DFS rates at 8 years were 91.2% and 94% respectively.

Conclusions: LDR brachytherapy as monotherapy is an excellent method to control localized prostatic carcinoma with only 6% of recurrence.

UP469

Comparison of Perioperative Results and Short-Term Biochemical Recurrence Survival in RARP within 2 Weeks of Biopsy

Lee J¹, Jeh S¹, Kwon J¹, Jung H¹, Kang H¹, Cho K¹, Ham W¹, Lee J², Cho I³, Choi Y¹

¹Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea; ²Dept. of Urology, Cheil General Hospital & Women's Healthcare Center, Kwandong University College of Medicine, Seoul, South Korea; ³Dept. of Urology, Inje University College of Medicine, Gimhae, South Korea

Introduction and Objectives: To evaluate whether robot-assisted radical prostatectomy (RARP) performed within 2 weeks of prostate biopsy is associated with postoperative outcomes and biochemical recurrence compared with a control group, using propensity scores. **Materials and Methods:** Of the 879 patients who underwent RARP by single surgeon (YDC) between August 2005 and April 2012, 96 patients who underwent RARP within 2 weeks of prostate biopsy were analyzed. Propensity scores for an established control group were calculated for each patient using multivariable logistic regression based upon the following covariates: age, body mass index, preoperative prostate-specific antigen level, prostate volume, biopsy Gleason score, clinical tumor stage, and D'Amico risk stratification. Propensity score-matching was performed to select the most similar propensity scores among the group after 2 weeks of biopsy, in a 1:1 ratio with respect to the reference group of patients who underwent RARP within 2 weeks of biopsy.

Results: In 192 patients, the mean age was 64.60 ± 7.44 years and mean follow-up was 28.31 ± 15.89 months. There were no statistical differences in variables used in propensity score matching. Operation time (124.48 ± 25.00 vs. 118.25 ± 25.05 ; $p=0.084$) and estimated blood loss (292.70 ± 221.33 , 250.83 ± 165.20 ml; $p=0.139$) were not significantly different between the two groups. In a log-rank test using the Kaplan-Meier curve, there were no statistical differences in biochemical disease recurrence between the two groups ($p=0.067$, HR: 0.6324; 95% CI 0.3859-1.0364).

Conclusion: RARP within 2 weeks of prostate biopsy may be performed safely in patients for postoperative outcomes and biochemical recurrence as compared with RARP after 2 weeks of biopsy.

UP470

Analysis of Expanded Criteria to Select Candidates for Active Surveillance of Low-Risk Prostate Cancer

Jo J, Lee H, Byun S, Lee S, Hong S

Seoul National University, Bundang Hospital, Seongnam-si, South Korea

Introduction and Objectives: To analyze the value of each criterion for clinically insignificant prostate cancer (PCa) in the selection of men for active surveillance (AS) of low-risk PCa.

Materials and Methods: We identified 532 men treated with radical prostatectomy from 2006 to 2013 who met 4 or all 5 criteria for clinically insignificant PCa (clinical stage \leq T1,

PSA density \leq 0.15, biopsy Gleason score \leq 6, number of positive biopsy cores \leq 2, and no core with $>$ 50% involvement) and analyzed their pathologic and biochemical outcomes. Patients who met all 5 criteria for clinically insignificant PCa were designated as Group A (n = 172), and those who met 4 of 5 criteria as Group B (n = 360). Association of each criterion with adverse pathologic features was also assessed via logistic regression analyses.

Results: Comparison of Group A and B and also logistic regression analyses showed that PSA density $>$ 0.15 ng/ml and high (\geq 7) biopsy Gleason score were associated with adverse pathologic features. Higher ($>$ T1c) clinical stage was not associated any adverse pathologic features. Although \leq 3 positive cores were not

associated with any adverse pathology, \geq 4 positive cores were associated with higher risk of extracapsular extension (p = 0.031).

Conclusion: Among potential candidates for AS, PSA density $>$ 0.15 ng/ml and biopsy Gleason score $>$ 6 pose significantly higher risks of harboring more aggressive disease. Eligibility criteria for AS may be expanded to include men with clinical stage T2 tumor and 3 positive cores.

UP471

Ablatherm-HIFU Hemiablation: An Optional Treatment for Unilateral Low-Risk Prostate Cancer

Sanchez-Salas R¹, Prapotnich D¹, Barret E¹, Secin F², Galiano M¹, Rozet F¹, Cathala N¹,

UP470, Table 1. Logistic regression analysis of AS Epstein criteria and adverse pathologic outcome in patient who met all but one criterion with aim of assessing the value of each eligibility criterion

| | Extracapsular tumor extension | | Seminal vesicle invasion | | Pathological Gleason score \geq 7 (4+3) | | Significant Tumor [†] | |
|--|-------------------------------|---------|--------------------------|---------|---|-----------|--------------------------------|-----------|
| | OR (95%CI) | p-value | OR (95%CI) | p-value | OR (95%CI) | p-value | OR (95%CI) | p-value |
| Clinical stage: | | | | | | | | |
| T1 | ref. | | ref. | | ref. | | ref. | |
| T2a | 1.998 | 0.435 | 0.874 | 1 | 1.11 | 0.898 | 1.604 | 0.444 |
| T2b or Greater | 0 | | 1.828 | 1 | 0 | 0.999 | 0 | 0.999 |
| PSA density (ng/ml): | | | | | | | | |
| Less than 0.15 | ref. | | ref. | | ref. | | ref. | |
| 0.15-0.18 | 5.664 | 0.01 | 1.215 | 1 | 0.475 | 0.492 | 2.619 | 0.067 |
| 0.19-0.23 | 6.4 | 0.003 | 1.132 | 1 | 2.124 | 0.215 | 4.466 | 0.001 |
| Greater than 0.23 | 5.439 | 0.005 | inf. | 0.995 | 1.44 | 0.531 | 3.19 | 0.007 |
| Biopsy place: | | | | | | | | |
| SNUBH | ref. | | ref. | | ref. | | ref. | |
| Other clinic | 1.74 | 0.124 | 0 | 0.996 | 1.634 | 0.22 | 1.691 | 0.07 |
| Biopsy gleason score: | | | | | | | | |
| Less than 6 | ref. | | ref. | | ref. | | ref. | |
| 7 (3+4) | 1.488 | 0.729 | 1.111* | 0.995 | 6.549 | 0.002 | 4.451 | 0.01 |
| 7 (4+3) | 5.335 | 0.155 | 1.05 | 1 | 49.126 | $<$ 0.001 | 33.847 | $<$ 0.001 |
| 8 or Greater | 0 | | 0.757 | 1 | 4.392* | 0.999 | 3.046* | 0.999 |
| Positive core number: | | | | | | | | |
| 1~2 | ref. | | ref. | | ref. | | ref. | |
| 3 | 1.601 | 0.679 | 0.919 | 1 | 2.897 | 0.141 | 1.996 | 0.319 |
| 4 | 7.26 | 0.031 | 0.829 | 1 | 0 | 0.999 | 2.782 | 0.217 |
| 5 or Greater | 7.741 | 0.027 | 1.065 | 1 | 0 | 0.999 | 2.985 | 0.192 |
| Maximum core positive %: | | | | | | | | |
| Less than 50 | ref. | | ref. | | ref. | | ref. | |
| 51-60 | 12.227 | 0.049 | 1.828 | 1 | 6.985 | 0.114 | 4.751 | 0.198 |
| 61-75 | 0 | | 0.757 | 1 | 0 | 1 | 0 | 1 |
| Greater than 75 | 28.348 | 0.028 | inf. | 1 | 16.644 | 0.06 | 11.153 | 0.1 |
| [†] Non-organ confined or pathologic Gleason score 7 (4+3) or Greater | | | | | | | | |
| *Insufficient outcomes | | | | | | | | |

Cathelineau X¹¹Institut Montsouris, Paris, France; ²CEMIC and San Lazaro Foundation, Buenos Aires, Argentina

Introduction and Objectives: To assess early follow-up of focal Ablatherm HIFU for organ-confined prostate cancer (PCa) in selected patients.

Materials and Methods: Between February 2012 and August 2013, 55 patients with localized prostate cancer were assigned to focal ablatherm HIFU protocol. Forty four patients had complete data for the analysis and composed the population of the study. Inclusion criteria were: unilateral disease, clinical stage of T1c to T2a, maximum positive biopsies < 33%, Gleason score ≤ 7 (3+4), no extraprostatic extension disease. No previous prostate cancer-related treatment was accepted. Ninety percent of patients were selected for focal therapy with transperineal saturation biopsy. Hemi-ablation was carried out with the Ablatherm HIFU system (Edap TMS, Lyon France). Oncological and functional outcomes were analyzed in the follow-up. Control biopsies were done within the first year of follow. Treatment failure was defined as a positive biopsy or need for salvage therapy.

Results: Median number of biopsies were 15 (6-54) with at least 1 positive biopsy in 55 treated patients (a maximum of 5 positives unilateral cores was observed in one case). Median age at time of treatment was 67 years (range 50-87), median PSA was 6 ng/ml (range 1.6-15), median prostate volume was 35 g (15-80), median BMI was 24 (19-32), Gleason score was 2+3, 3+2, 3+3 and 3+4 in 1, 3, 46

and 5 patients, respectively. The median PSA nadir was 2.9ng/ml (0.1-13.25) with a median time to nadir of 22 weeks (11-52). Median PSA velocity was 0.7ng/mL/year. Mean follow-up was 14.8 months (2.1-34). Out of 44 evaluable patients, biochemical recurrence was verified in 15 patients (34%) based on Phoenix criteria. The negative biopsy rate was 69% (29 patients out of the 42 evaluated). Two patients with positive biopsies in the non-treated lobe with negative biopsies in the treated lobe. Secondary treatment in 4 patients (8%): 2 HIFU retreatments, 1 HIFU retreatment followed by radical prostatectomy and 1 patient receiving intermittent hormone therapy. Three of these patients harbored positive in the treated area (1 patient gleason 7 (3+4) and 2 patients gleason 6). The mean PSA value dropped significantly at 12 months in 36 patients (Figure 1). Evaluation at three months postoperative period showed no significant changes for both ICS and international symptom prostate score ($p=0.876$ and $p=0.130$). At the same time period a significant impact was showed for IIEF score ($p=0.001$). Complications included 9% of grade II Clavien classification events. There were two Clavien III events.

Conclusions: Ablatherm HIFU Hemiablation is a compelling low-morbidity option in selected patients in localized low-risk PCa with a low secondary treatment rate. In our experience postoperative biopsies and Phoenix criteria were not systematically associated. Longer follow-up is expected for establishing further considerations regarding oncological outcomes of this approach.

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Targeted Histoscanning Guided Prostate Biopsy: Initial Clinical Experience

Sivaraman A^{1,2}, Sanchez-Salas R², Barret E², Macek P³, Secin F⁴, Praptochnich D², Rozet F², Galiano M², Cathelineau X²

¹St. John's Medical College, Bangalore, India;²Institut Montsouris, Paris, France; ³General University Hospital and First Faculty of Medicine, Charles University, Prague, Czech Republic; ⁴San Lazaro Foundation and CEMIC, Buenos Aires, Argentina

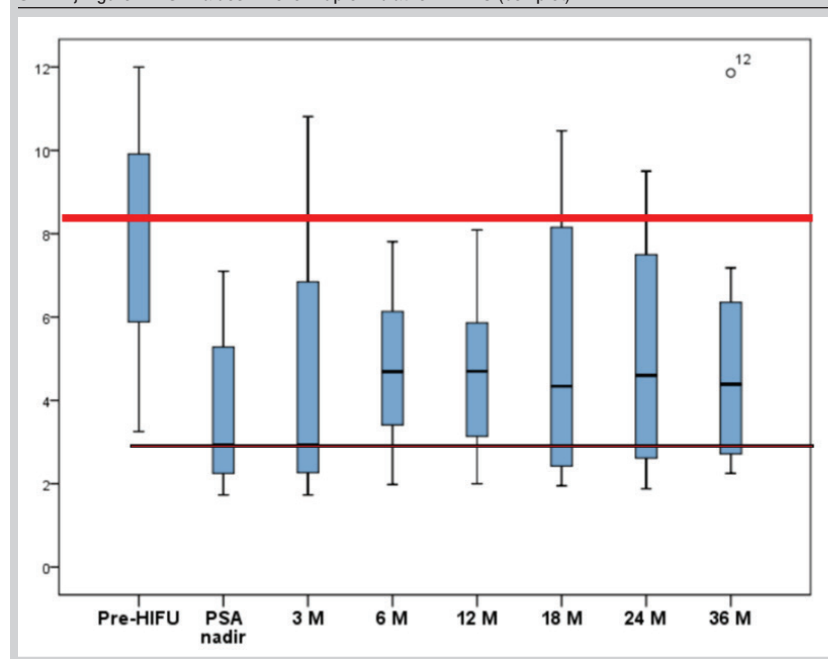
Introduction and Objectives: The sensitivity and specificity of prostate histoscanning (PHS) in detecting PCa lesion ≥ 0.1 cm³ are 60% and 66% respectively. The aim of this study was to evaluate the feasibility of PHS guided target acquisition and transrectal ultrasound (TRUS) biopsy using the additional specialized software Prostate HistoScanning™ True Targetting (PHS-TT).

Materials and Methods: PHS-TT (Histoscanning™, Advanced Medical Diagnostics, Waterloo, Belgium) was performed on 43 patients who were planned for TRUS biopsy between February 2013 and September 2013. Procedure was done under sedation or general anesthesia with patient in lateral position. TRUS images were acquired using a side fire probe with a ring adapter magnetically attached to a rotation mover. Data were processed in the Histoscanning T-T™ workstation with software version 3.0. PHS was performed by the software and all abnormal areas ≥ 0.2 cm³ were highlighted. Volume of abnormal area was noted and targets were planned using the embedded software. Targets were plotted on the abnormal areas in the anterior region of the prostate and biopsied. Patients also underwent routine bi-sextant biopsy. Final histopathology of all the cores was noted.

Results: Forty-three patients underwent both 'targeted PHS-TT guided' and 'standard 12 core systematic' biopsies. All the patients had abnormal areas in the PHS with a mean volume of 4.3 g. Overall cancer detection rate was 46.5% (20/43). Individual cancer detection rates for systemic cores and target cores were 44% (19/43) and 26% (11/43), respectively. Detection rate of target cores raised to 43.7% (7/16) in biopsy naïve patients. A total of 15.2% (31/204) target cores and 17.4% (90/516) systematic cores were positive for cancer and one patient had cancer detected only in the target cores. In biopsy naïve patients, cancer detection rate (43.7% vs. 14.8%, $p = 0.06$) and the cancer positivity of the cores (30.1% vs. 6.8%, $p < 0.01$) of target cores were higher than those patients with prior biopsies. In patients with T1c cancer, the mean % of cancer / core length was higher in target cores than the systematic cores (51.7% vs. 37.2%, $p = 0.07$).

Conclusion: The results of target biopsies were

UP471, Figure 1. PSA values in follow-up of Ablatherm-HIFU (box plot).



comparable to systematic biopsies and were better in certain variables.

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Intra Ocular Pressure Evaluation during Robot Assisted Laparoscopic Prostatectomy
Nakao I¹, Tokuda Y², Kusumoto M¹, Tobu S², Udo K², Noguchi M², Enaida H¹, Hatano T^{2,3}, Uozumi J²

¹Dept. of Ophthalmology, Saga University, Saga, Japan; ²Dept. of Urology, Saga University, Saga, Japan; ³Tokyo Medical University, Tokyo, Japan

Introduction and Objectives: Generally, prostate cancer patients who have glaucoma should avoid Robot Assisted Laparoscopic Prostatectomy (RALP) because possibility of visual field loss due to high intra ocular pressure condition. The aim of this study is to evaluate the intra ocular pressure (IOP) during RALP in order to clarify the predictable ophthalmological risk factor for steep head-down position during surgery.

Materials and Methods: Five of RALP patients, 10 eyes have done ophthalmological check including IOP, corneal thickness, anterior chamber depth and angle opening distance preoperatively. Age was averaged 67 years old (range: 63-74). BMI was averaged 25.8 (range: 23.2-27.2). RALP was performed by a single surgeon. Console time was averaged 180 minutes (range: 158-220). During RALP procedure, IOP was checked by Perkins tomometer at prior head down position, 30 min, 60 min, 120 min, 180 min during head-down position and putting back supine position. Head down steep was 30 degree in all cases. No ophthalmic adverse event was recorded after surgery.

Results: In every case, IOP at head-down position elevated averaged 20 mmHg higher than that of supine position time-relatively until 120 minutes. IOP decreased immediately after putting back to supine position. Preoperative individual higher IOP correlated with intra-operative higher intra ocular pressure statistically (R^2 : 0.9092). There were no correlation between intra ocular pressure elevation and personal preoperative condition such as corneal thickness, anterior chamber depth and angle opening distance.

Conclusion: IOP during the operation would be predictive by preoperative intra ocular pressure. However, further study is needed for correlation between operation time length and postoperative eye condition because our data was small and immature. Even so we have some disadvantage such as the operation view or the difficulty of approaching technique, we would better select the mild head-down position or retroperitoneal approach for the patients with higher IOP until clarifying the time dependent risk.

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Medium- to Long-Term Follow-Up of Patients Treated with Retropubic Radical Prostatectomy for Clinically Localized Prostate Cancer: First Report from Pakistan
Abbas F, Nazim S, Nadeem M, Faruqi N
Aga Khan University Hospital, Karachi, Pakistan

Introduction and Objectives: To evaluate the medium- to long-term cancer control, morbidity and mortality in men undergoing radical retro pubic prostatectomy (RRP) and PLND (pelvic lymph node dissection) for clinically localized adenocarcinoma prostate (CaP).

Materials and Methods: From December 1997 to June 2012, two hundred patients underwent RRP and PLND for localized CaP. All patients with clinically confined biopsy proven adenocarcinoma of prostate were included. Total of 207 patients identified from the hospital data base, of which, 25 patients were excluded. Patient's characteristics, operative data, morbidity, mortality, progression-free survival (PFS) and cancer specific survival (CSS) were analyzed. Statistical analysis was done using SPSS v. 19. Chi-Square and log rank test were applied for statistical significance. Kaplan Meir curve was plotted for survival estimate.

Results: The mean age was 63.6 years (range: 43 to 77 years). Mean pre-operative (PSA) was 21 ± 19 ng/ml (1.0 to 131), 50% had gleason score of more than 6 and nearly 50% had clinical stage above cT2a. RRP and bilateral PLND was performed in 192 patients (87%) of which 35 (20%) had nerve-sparing surgery. On final histopathology 78% of tumors were confined to the specimen, 13% had seminal vesicle invasion and 12% had nodal metastasis. Twenty four (12.5%) patients had positive surgical margins of which 13 patients had rising PSA requiring adjuvant treatment while remained disease free on long-term follow-up. Overall 85% of the patients were fully continent while 15% had mild to moderate stress urinary incontinence. At median follow-up of 41 ± 31 months (26-170 months), the 5 and 10 years overall survival and PFS were 92%, 58% and 85%, 68% respectively. On multivariate analysis, PSA, Gleason, Clinical Stage, D'Amico Risk Group, Positive surgical margin, Seminal Vesicle involvement, final pathological stage were all found to be independent predictor of PFS. The 5 and 10 years CSS was 98% and 80% indicating durability of procedure.

Conclusions: Our long-term results indicate that RRP has an excellent potential for cancer control with low morbidity in men with localized CaP and our data is consistent with larger data series from other centers around the world.

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Dynamics of Lower Urinary Tract Symptoms following Radical Prostatectomy as Assessed by International Prostate Symptom Score

Kim S, Kim S, Choo S

Ajou University School of Medicine, Suwon, South Korea

Introduction and Objectives: We assessed change in lower urinary tract symptoms in patients undergoing RP using the simple and universal method of International Prostate Symptom Score (IPSS).
Materials and Methods: From January 2008 to February 2013, 253 patients underwent RP. The night before the operation, all patients completed the IPSS questionnaire. Urethral catheter was removed at post-operative day 8 to 12. At post-operative visit at 1, 3, 6, 9 and 12 months, patients completed the IPSS. Wilcoxon-signed rank test was used to compare the different IPSS values and its components over time from baseline.

Results: The mean patient age was 67.4 ± 7.8 . One-hundred fifty three patients had completed both preoperative IPSS and IPSS at one year after RP. The mean IPSS at baseline and at post-operative month 1, 3, 6, 9 and 12 were 13.0, 15.4, 12.4, 11.9, 11.0 and 10.6, respectively. IPSS significantly worsened at month 1 from baseline ($p=0.009$), and then significantly improved from baseline at month 9 ($p=0.014$) and 12 ($p=0.002$), which was in line with significant temporary worsening of irritative symptom score at month 1 (5.6 versus 7.5, $p<0.001$), and significant improvement in obstructive symptom score at month 9 (7.4 versus 5.4, $p=0.002$) and 12 (7.4 versus 5.2, $p>0.001$). Patients were divided into subgroups according to mild (IPSS <8 , $n=44$), moderate (IPSS of 8 to 15, $n=52$) and severe (IPSS >15 , $n=57$) symptoms. For patients with mild symptoms, IPSS at month 12 significantly worsened from baseline (4.3 to 8.0, $p=0.014$), while it did not change significantly for patients with moderate symptoms (11.1 to 10.8, $p=0.687$). For patients with severe symptoms, IPSS at month 12 significantly improved from baseline (21.4 to 12.3, $p>0.001$).

Conclusion: IPSS in patients undergoing RP showed dynamic change over time with initial worsening and progressive improvement till 1 year. Patients with mild, moderate and severe symptom score showed different dynamics of IPSS following RP. These suggest that baseline and serial IPSS measurements are useful tools in the pre-treatment patient counseling and postoperative monitoring of urinary symptoms in patients undergoing RP.

UP477

Maintenance of Serum Testosterone Concentration below Castrate Level after Discontinuation of Androgen Deprivation Treatment (ADT): The Duration of ADT the Only Affecting Factor

Bang W, Oh C, Yoo C, Ko K, Yang D, Lee Y, Lee W, Han J, Cho J
College of Medicine, Hallym University, Chuncheon, South Korea

Introduction and Objectives: To evaluate factors affecting maintenance of castration status in intermittent androgen deprivation therapy (IADT) for prostate cancer after discontinuation of ADT.

Materials and Methods: We retrospectively evaluated 56 men (mean age 78.5 years) with prostate cancer who underwent ADT >6 months as primary (60.7%), adjuvant (35.7%) or salvage (3.6%) treatment. ADT regimens included goserelin (62.5%), leuporelin (14.3%), triptorelin (14.3%), and goserelin with bicalutamide (8.9%). Median duration of initial ADT was 22.5 months (range 6–91), and median follow-up was 8.95 months (range 3–44.6). Initial mean serum prostate-specific antigen and testosterone levels were 70.2 ± 144.4 ng/mL and 4.01 ± 0.89 ng/dL, respectively, and immediately after discontinuation of ADT they were 0.07 ± 0.12 ng/mL and 0.07 ± 0.05 ng/dL. Relationships between clinicopathological factors and maintenance of castration status after discontinuation of ADT were evaluated by univariate and multivariate analyses.

Results: Median testosterone-recovery free survival time was 9.1 months. Univariate

analysis showed that duration of initial ADT was the only factor associated with maintenance of castration status ($p=0.014$, relative risk 0.971, 95% confidence interval 0.949–0.994). Receiver operating characteristic curve analysis showed that the optimal duration of initial ADT was 27 months (sensitivity 0.738, specificity 0.714; AUC 0.794, $p=0.001$, 95% CI 0.671–0.0917). Castration status was maintained longer in subjects who underwent long-term (≥ 27 months) initial ADT ($n=21$) compared with those who underwent short-term ADT ($n=35$; $p=0.034$).

Conclusions: To maintain testosterone below castrate level after discontinuation of ADT as long as possible, the duration of initial ADT should exceed 27 months.

UP478

Long Term Oncological Outcome of High Risk Prostate Cancer Treated with Laparoscopic Prostatectomy

Takeda H, Matsuzawa I, Suzuki Y, Hamasaki T, Kimura G, Kondo Y
Nippon Medical School, Tokyo, Japan

Introduction and Objectives: The optimal treatment modality for high risk prostate cancer has not been established. Radiotherapy, hormonal therapy, or a combination of treatments are the main strategies, although the feasibility of radical prostatectomy as a first line therapy needs to be considered. We evaluated the long-term oncological outcome of radical laparoscopic prostatectomy.

Materials and Methods: High risk prostate cancer patients who underwent laparoscopic

radical prostatectomy at Nippon Medical School from 2000 to 2012 with or without adjuvant or neoadjuvant therapy of any kind were identified. High risk factors are prostate-specific antigen >20 ng/mL, clinical $>T3$ and pathological Gleason Score >8 . Biological failure was defined as PSA ≥ 0.2 ng/mL.

Results: A total of 179 men were identified. A positive lymph nodal status was not observed in any of the patients, and there was no significant difference in surgical margin positivity (51 men, 28%) for biochemical failure. With a follow-up to 120 months (mean 33.7 months), biochemical recurrence-free survival rate was 82.4% with a mean time to recurrence of 14.6 months. Overall survival rate was 96.6% at 5 and 10 years, and cancer specific survival rate was 100% for both 5 and 10 years.

Conclusions: Reasonable long term oncological outcomes can be achieved by radical laparoscopic prostatectomy for high risk prostate cancer.

UP479

Clinical Outcomes of the Bladder Neck (BN) Preservation Technique through Anatomical Lateral BN Dissection during Robot-Assisted Laparoscopic Radical Prostatectomy

Kim S, Kim T, Cho W, Sung G
Dong-A University Hospital, Busan, South Korea

Introduction and Objectives: Robotic-assisted laparoscopic prostatectomy (RALP) is widely used for the management of prostate cancer. One of the techniques, BN preservation may improve post-prostatectomy urinary continence, but there is still concern regarding increased risk of positive surgical margins and compromising cancer control. We compared the clinical outcomes of BN preservation vs. non-BN preservation groups during robot-assisted laparoscopic radical prostatectomy.

Materials and Methods: From November 2007 through May 2012, 159 patients who underwent RALP by single surgeon were compared in 2 groups on the basis of BN preservation (cBNP, $n=112$) vs. non-bladder neck preservation (nBNP, $n=47$). Bladder neck preservation was done by precise anatomical lateral bladder neck dissection technique. Continence was defined by one pad (50cc) or less within 24 hours. Biochemical recurrence was defined as prostate specific antigen 0.1 ng/mL or greater.

Results: Median follow-up for cBNP vs. nBNP groups were 20.8 vs. 32.7 months. There were no statistical difference with patient demographics, operation time, mean blood loss and the pathologic stage in both groups. Mean catheterization time was short in cBNP group (7.1 day vs. 8.9 day; $P=0.043$). On adjusted analyses of cBNP vs. nBNP groups, cBNP group was associated with better continence at 1, 3 months (62.5% vs. 35.5%, $p<0.001$, 90.6% vs. 71%, $p=0.092$). In cancer control, there was no

UP477, Table 1. Univariate analysis of relationships between clinicopathological factors and testosterone recovery after discontinuation of androgen deprivation therapy

| | P | HR | 95% CI |
|---|-------|-------|---------------|
| Age | 0.320 | 0.979 | 0.938–1.021 |
| BMI | 0.294 | 0.955 | 0.876–1.041 |
| Prostate volume in TRUS | 0.711 | 1.004 | 0.984–1.023 |
| T stage | 0.207 | | |
| N stage | 0.356 | 1.506 | 0.632–3.591 |
| M stage | 0.842 | 0.729 | 0.529–2.482 |
| Gleason score | 0.694 | | |
| Initial PSA | 0.542 | 1.001 | 0.999–1.002 |
| Initial testosterone | 0.241 | 1.793 | 0.676–4.757 |
| Baseline PSA | 0.432 | 0.347 | 0.025–4.867 |
| Baseline testosterone | 0.886 | 0.606 | 0.001–591.964 |
| Treatment types | 0.145 | | |
| ADT types | 0.808 | 1.137 | 0.404–3.205 |
| ADT regimen | 0.102 | | |
| Duration of ADT | 0.014 | 0.971 | 0.949–0.994 |
| ADT, androgen deprivation therapy; BMI, body mass index; PSA, prostate-specific antigen; TRUS, transrectal ultrasound | | | |

significant difference in surgical margin status between cBNP vs. nBNP group (16.3% vs. 14.5%, $p=0.65$). Also, biochemical recurrence-free survival was similar in 2 groups.

Conclusions: Bladder neck preservation technique is associated with significantly higher post-prostatectomy continence rates in early period without compromising surgical resection margins when compared to non-BN preservation technique.

UP480

Radical Perineal Prostatectomy in Treatment of Prostate Cancer

Kalpinskiy A, Alekseev B, Nyushko K, Vorobyev N, Krashennikov A, Kaprin A
Moscow Herten Oncology Institute, Moscow, Russia

Introduction and objectives: Radical prostatectomy (RP) is one of the most reliable methods of treatment of patients (pts) with localized prostate cancer (PC). As it was shown perineal approach is a less invasive method of surgical treatment. The aim of the study was to assess long-term results of perineal RP (PRP) in pts with clinically localized PC.

Materials and Methods: A total of 73 pts after PRP since 2004 till 2013 were included in analysis. Mean age was 64.8 ± 5.1 years (50-74); mean PSA level – 8.8 ng/ml (2.2-20.8). Mean percentage of positive biopsy cores was $25.7 \pm 15.4\%$ (8.3-60%). Clinical stage T1c was detected in 15 (20.6%) patients; T2a – in 21 (28.8%) patients; T2b – in 19 (26%); T2c – in 18 (24.6%) pts. Biopsy Gleason score ≤ 6 was verified in 56 (76.7%) pts, 7 (3+4) – in 4 (5.5%) and 7 (4+3) – in 5 (6.8%); 8 – in 1 (1.4%); not assessed in 7 (9.6%) pts. Low risk PC was verified in 59 (80.8%) pts, intermediate risk – in 12 (16.4%) and high risk – in 2 (2.8%) pts. Lymph node dissection was performed in 8 (10.9%) patients with high or intermediate PC risk via same incision or laparoscopically.

Results: Median follow-up time was 38.5 months. Mean operation time was 130 min; median blood loss was 600ml. pT2b was verified in 4 (5.5%) patients, pT2c – 46 (63%), pT3a – 17 (23.3%) patients, pT3b – 5 (6.8%) and pT4 – 1 (1.4%) patients. Lymph node metastases were found in 1 (1.4%) pts. Post-operative Gleason score ≤ 6 was observed in 57 (78.1%) pts, 7 (3+4) – in 10 (13.7%) and 7 (4+3) – in 5 (6.8%) pts; not assessed in 1 (1.4%) pts. Positive surgical margin was found in 2 (2.7%) pts. Biochemical recurrence was verified in 14 (19.2%) pts. 5 year biochemical recurrent-free survival (bRFS) and overall survival (OS) were $71.3 \pm 7.9\%$ and $96.1 \pm 3.8\%$, respectively. Cox regression analysis revealed statistically significant correlation between PSA level ($p=0.04$), Gleason score ($p=0.03$), percentage of positive biopsy cores ($p=0.04$) and bRFS.

Conclusions: PRP is oncologically safe and feasible procedure in patients with low risk PC. Preoperative clinical staging was not accurate in 33% of pts in our study, in whom morphological examination revealed locally-advanced tumors.

UP481

Robotic Radical Prostatectomy Pathology Outcomes in Patients Who Discontinued Active Surveillance

D'Elia G, Emiliozzi P, Iannello A, Cardi A
San Giovanni Hospital, Rome, Italy

Introduction and Objectives: Little is known about the outcome of robotic radical prostatectomy (RRP) specimens of patients initially followed using active surveillance (AS). We evaluated pathology findings of 19 patients undergoing RRP after an initial period of AS.

Materials and Methods: From January 2008 to August 2012, $n = 49$ patients with low-risk prostate cancer entered our AS protocol. Eligibility criteria for AS were: clinical stage T1c, Gleason score 6 (no pattern 4/5), two or fewer positive cores and $< 50\%$ single-core involvement, PSA < 10 ng/ml. AS protocol consisted of PSA measurements every 6 months and an annual 10 core biopsy. Progression leading to active treatment recommendation was defined as: PSA > 10 ng/ml or any Gleason pattern grade 4/5 or $> 50\%$ cancer in any core or cancer in more than two cores.

Results: A total of 19 patients discontinued AS (38% of the cohort) and underwent RRP (mean age 69 years, range 65-73). Median time to RRP was 13 months (6-22 months). Eleven patients (58%) switched to RRP because of anxiety and 8 patients (42%) underwent deferred RRP due to protocol-based recommendations. The pathologic stage was T2a in 10% of the cases (2 pts), T2b in 5% (1 pt), T2c in 53% (10 pts), T3a in 27% (5 pts) and T3b in 5% (1 pt). The Gleason score of the prostate specimen was upgraded in 58% of cases. A Gleason 6 pattern was evident in 42% of cases, Gleason 3+4 in 21%, Gleason 4+3 in 27% and Gleason 8 in 10%. Unfavorable pathologic RRP results (pT3-4 and/or Gleason score $\geq 4 + 3$) were found in 37% of cases (7 pts). All the patients who discontinued AS because of anxiety had pT2 disease. None of the patients with organ confined disease had positive margins whereas 1 patient with extracapsular disease had a monofocal positive margin. Overall positive surgical margin rate was 5.2%. Complete continence (pad free) at 1, 3, 6, and 12 months was 57%, 88%, 94% and 98%, respectively. At 1, 3, 6 and 12 months return of potency (IIEF-5 > 21) with or without the use of oral medications was achieved in 6%, 22%, 51% and 68%, respectively.

Conclusion: In our series, there was a high rate of AS discontinuation and most of these

patients switched to defer RRP because of anxiety. This might be related to profound popularity of RRP among patients in the belief of opting for a safe and efficacious intervention. This is confirmed by our high rates of early return to continence and preservation of erectile function despite the old age of the cohort. Pathology results in men who were initially followed with AS show potentially unfavorable outcomes in 37% of the cases. This finding emphasizes the need for better prediction tools to achieve safe AS protocols.

UP482

Surgical Margins Less Than 1mm Have No Effect on Biochemical Recurrence after Robotic Radical Prostatectomy

D'Elia G, Emiliozzi P, Iannello A, Cardi A
San Giovanni Hospital, Rome, Italy

Introduction and Objectives: Positive surgical margins (SM) are universally acknowledged as an independent predictor of biochemical recurrence after open radical prostatectomy. However, it is not clear whether tumor distance less than 1 mm from the surgical margin might affect biochemical failure. We assessed the impact on biochemical recurrence in men with robotic radical prostatectomy specimens having negative SM, positive SM and SM less than 1 mm.

Materials and Methods: A consecutive series of 400 men undergoing robotic radical prostatectomy with a minimum follow-up of 24 months was divided into 3 groups based on margin status: negative, positive and less than 1 mm. Biochemical recurrence was defined as PSA greater than 0.2 ng/ml on 2 consecutive tests. Cox regression models were constructed to evaluate predictors of biochemical recurrence.

Results: A total of 40 patients (10%) had margins less than 1 mm, 60 patients (15%) had positive margins (8% of T2 and 26% of pT3) and 312 patients (75%) had negative margins. Preoperative PSA, pathological stage, Gleason score, and margin status were independent predictors of biochemical recurrence. Patients with negative SM and those with a SM less than 1 mm had similar rates of biochemical recurrence (log rank test $p=0.18$).

Conclusions: Surgical margins less than 1 mm seem to have no effect on biochemical recurrence after robotic radical prostatectomy. Longer follow-up is necessary for confirmation of this finding.

UP483

Urinary Incontinence after Salvage High-Dose-Rate Brachytherapy in Prostate Cancer Patients

Wojcieszek P, Fijałkowski M, Andrejczuk A, Głowacki G, Szlag M, Kellas-Ślęczka S, Białas B

MSC Memorial Cancer Centre and Institute of

Oncology, Gliwice, Poland

Introduction and Objectives: There are many modalities in the primary management of prostate cancer patients. Recurrence management is difficult, particularly after primary irradiation. Salvage high-dose-rate brachytherapy (HDR-BT) seems to be very useful tool in prostate cancer relapse treatment. It provides local high dose irradiation. Unlike permanent seeds dose can be fractionated and optimized to protect organs like urethra or rectal wall. The aim of our study was to evaluate probability of urological interventions and urinary incontinence after salvage HDR-BT.

Materials and Methods: Prospective pilot study on salvage HDR-BT was started in our centre in 2008. Main inclusion criteria were: localised prostate cancer relapse after EBRT (alone or combined with BT), no prior radical prostatectomy and histopathological confirmation of recurrence. Included patient was planned for three fractions of HDR BT, 10 Gy each, every two weeks in 28 days. We included in the analysis all salvage patients treated until 31/12/2012. Urinary retention, urological interventions and urinary incontinence rates were assessed. 5-year adverse event-free survivals were calculated.

Results: Eighty-three men were enrolled in this study. Median age was 70 years (57-81). Median follow-up was 34 months (5-66). Eighteen men (21%) underwent urological intervention with median time of 27 months (2-66) after salvage HDR-BT. Eleven (13%) men suffered from urinary retention. Five of them had urethrotomy, 6 had transurethral prostate resection (TURP) and 1 had combination of both. 10 patients had urological intervention due to refractory obstructive urinary symptoms (5 TURP; 5 urethrotomy). Twelve patients developed urinary incontinence after urological intervention. Seven patients had urinary incontinence without any intervention. Three men needed suprapubic catheter. 5-year urological intervention-free survival was 72%. 5-year urinary incontinence-free survival (UIFS) was 69%. Any intervention was linked with urinary incontinence (5-year UIFS 22% vs. 85%, $p=0.0000$; HR-3.65).

Conclusions: Salvage HDR-BT has acceptable adverse-event rates. There is high probability of urinary incontinence after urological intervention.

UP485

Overexpression of ERG Is Associated with Favorable Outcome of Low Biochemical Recurrence in Prostate Cancer

Kim S¹, Park W², **Joung J¹**, Lee K¹, Kim S³, Lee G⁴, Hong E⁴

¹Dept. of Urology, Center for Prostate Cancer, Research Institute and Hospital of National Cancer Center, Goyang, South Korea; ²Dept. of

Pathology, Center for Prostate Cancer, Research Institute and Hospital of National Cancer Center, Goyang, South Korea; ³Dept. of Pathology, Yonsei University Severance Hospital, Seoul, South Korea; ⁴Dept. of Pathology and Center for Prostate Cancer, Research Institute and Hospital of National Cancer Center, Goyang, South Korea

Introduction and Objectives: TMPRSS2-ERG gene fusion resulting from the chromosomal rearrangement of the androgen-regulated TMPRSS2 gene and the ETS transcription factor ERG, and PTEN deletion with its absence of expression are two of the most common genomic events found as new prognostic biomarker in human prostate cancer. The aim of this study is to investigate the expression of ERG and PTEN in prostate cancer using immunohistochemical stain and evaluates its correlation with clinicopathologic characteristics.

Materials and Methods: Tissue microarrays were made from 437 prostate adenocarcinoma tissues and immunohistochemical stains were performed to evaluate the expression pattern of ERG and PTEN proteins and to analyze its association with clinicopathological parameters including the prognosis of biochemical recurrence. All results were considered statistically significant when P values were <0.05 .

Results: The clinicopathologic characteristics were analyzed statistically. ERG and p53 overexpression were observed in 90 (20.6%) and 45 (10.3%) cases of 437 prostate cancers, respectively. PTEN loss was found in each 8 (1.8%) cases. The group showing overexpression of ERG showed low serum PSA level and low Gleason's score sum ($P < 0.05$, respectively) with low biochemical recurrence rate. PTEN protein expression was not found significantly related to clinicopathological parameters. In multivariate analysis, only preoperative PSA (HR 2.261, 95%CI 1.133-4.514) and pathologic T stage (HR 3.047, 95%CI 2.004-4.633) were significant risk factors for biochemical recurrence free survival ($p < 0.05$). After compared between

ERG expression and ERG non-expression groups, biochemical recurrence free survival showed significant differences ($p < 0.05$). In categorizing the patients into 4 groups according to ERG expression and PTEN loss, all the 4 groups had significant differences in biochemical recurrence free survival curve ($p < 0.05$).

Conclusions: ERG expression has predictive values for biochemical recurrence free survival of prostate cancer after radical prostatectomy even though we have no long-term follow-up date.

UP486

Measurement Serum Level of PSA and Free PSA in Fresh and Freezed Blood Samples

Taghavi R, Darabi-Mahboub M, Ataiean S, Hasanzade J

Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Prostate specific antigen (PSA) is a useful tumor marker in diagnosis, staging, monitoring and determining the recurrence prostate cancer. This study was design to compare the serum level of PSA and F PSA in fresh and frozen (at -20°C for 72 hrs) blood samples.

Materials and Methods: A total of 111 patients referring to the urology clinic of Imam Reza Hospital, having voiding symptoms, and in need of testing their PSA and F PSA serum level were selected as the study population. For these patients the PSA and F PSA was measured simultaneously in fresh and frozen (at -20°C for 72 hrs) blood samples in two independent labs. Then data analyzed using SPSS software.

Results: In two labs, there was not any significant difference between the levels of PSA in fresh and frozen blood sample ($P > 0.05$). Significant correlation was found between the level of Free PSA in fresh and frozen blood sample ($P = 0.001$). Besides, significant difference was observed between FPSA/PSA ratio in fresh and frozen samples ($P = 0.01$).

Conclusion: Using of frozen blood samples is useful instead of fresh blood samples in evaluation PSA but for free PSA and free PSA to PSA $\times 100$ must be measure by fresh blood samples.

UR487

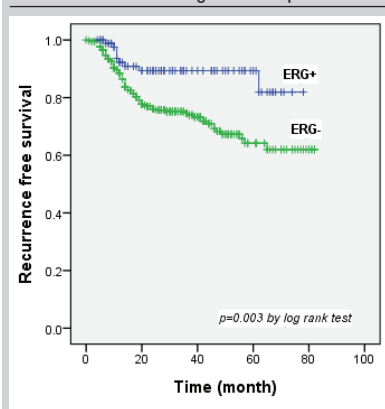
Relationship between Body Mass Index and Prostate Specific Antigen in Patient with Lower Urinary Tract Symptoms

Taghavi R, Aameli M, Jahed-Ataiean S, Hasanzade J

Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: In recent years the use of Prostate Specific Antigen test (PSA) has reduced the mortality rate of prostate cancer. Certain factors by affecting the levels of PSA, decrease or increase prostate cancer detection. Some studies suggest the effect of body weight and Body Mass Index (BMI) on PSA,

UP485, Figure 1. Biochemical Recurrence Free Survival Curve According to ERG Expression



while some others are contrary to the opinion mentioned. Hence, in this study we examined the relationship between BMI and PSA.

Materials and Methods: In the present study 140 patients with LUTS (Lower Urinary Tract Symptoms) that had referred to the Urology clinic of Imam Reza Hospital (affiliated to Mashhad University of Medical Sciences), were studied. Patients with prostate cancer, prostatitis, recurrent UTI, taking finasteride and history of prostate surgery were excluded. The data of body weight, BMI, prostate volume, PSA and Free PSA were collected. Patients were divided in two groups; Group A with a BMI less than 27 and Group B with BMI equal and greater than 27. The data were analyzed with T-test, Correlation and SPSS (version 15).

Results: Mean of age in patients was 63.6 ± 9.98 . Two groups in regard to age, prostate volume, and Free PSA did not differ statistically. Mean PSA level in Group A was 3.9 ± 4.3 and in Group B is 2.7 ± 1.3 . There is a significant difference in mean PSA level between two groups ($p=0.04$). We tested the correlation between PSA levels and BMI which were inversely correlated with increased BMI ($p=0.04$, $R=-0.175$).

Conclusions: This study showed that PSA is reduced with increasing BMI. However BMI does not affect Free PSA, thus the ratio between total PSA and free PSA rises, delaying prostate cancer diagnosis. The result of the present study showed that in different BMI levels physicians need different PSA cut points to decide on performing prostate biopsy.

UP488

Association between Serum Leptin Level and High-Risk Prostate Cancer

Kikugawa T, Noda T, Miura N, Tanji N, Yokoyama M
Ehime University, Toon, Japan

Introduction and Objectives: Adipocytokines such as leptin and adiponectin are polypeptide hormones released directly from adipocytes. Adipocytokines have been previously linked with carcinogenic mechanisms and may be associated with an increased risk of advanced prostate cancer. Thus, we here aimed to investigate the association between serum adipocytokine levels and the aggressiveness of prostate cancer.

Materials and Methods: A total of 205 prostate cancer patients received external beam radiotherapy and provided blood samples between 2002 and 2009 in our institute. The median patient age was 74 years (range, 58-81). The Gleason score (GS) was ≤ 6 , 7, and ≥ 8 in 59, 68, and 73 patients, respectively. The patients were classified into low- (N=28), intermediate- (N=84), and high-risk (N=113) groups. Serum adiponectin and leptin were analyzed by enzyme-linked immunosorbent assay, and the relationship between the levels

of serum adipocytokines and body mass index (BMI), prostate-specific antigen (PSA), GS, and these clinical risk groups were analyzed.

Results: A significant positive correlation was observed between serum leptin levels and BMI ($p<0.001$), and a negative correlation was observed with serum adiponectin levels ($p=0.003$). While the adiponectin levels were not significantly associated with high GS or high PSA, the leptin levels were conversely found to be significantly higher in subjects in the high GS, high PSA, and high-risk groups.

Conclusions: We here demonstrated that high leptin levels due to obesity may be associated with the aggressiveness of prostate cancer in Japanese patients.

UP489

Central Obesity (CT-Measured Visceral Adipose Tissue) Is High Risk for a High Gleason Score

Endo F¹, Hayashi C¹, Hishiki K¹, Kyono Y¹, Matsushita K¹, Shimbo M¹, Hattori K¹, Murai-shi O¹, Ohwaki K²

¹St. Luke's International Hospital, Tokyo, Japan;

²University of Teikyo, Tokyo, Japan

Introduction and Objectives: Although recent reports have indicated that obese prostate cancer patients may have poorer prognoses than those of normal patients, the relationship between central obesity and higher pathological malignant potential has not yet been determined. We evaluated the association between Gleason scores (GSs) obtained from radical surgeries and accurate visceral fat tissue (VAT) measured with CT.

Materials and Methods: The prostate cancer patients treated with open or robotic radical prostatectomy between December 2008 and December 2012 at St. Luke's International Hospital were included in this study. The patients who received any treatment before surgery were excluded. GS, CT-measured VAT, waist circumference (WC), pre-operative PSA level, and body mass index (BMI) were obtained by a retrospective chart review. High GSs, i.e., GSs $\geq 3+4$, which were determined as the response variable, were analyzed statistically based on age, PSA, VAT, and WC.

Results: There were 294 patients in the study. Their average age was 67 ± 7 . The mean pre-operative data were: PSA 6.63 (IQR: $4.47-9.52$) ng/ml; BMI 23.7 ± 2.6 kg/m²; VAT 130.7 ± 50.0 cm³; and WC 85.2 ± 7.8 cm. Also, the numbers of patients with GSs of 6, 7, 8, and 9 were 72, 169, 39, and 14, respectively. A univariate analysis showed a statistical difference between high GS and VAT in the obese group (BMI ≥ 25) (low GS: 155.4 ± 45.7 vs. high GS: 176.4 ± 43.9 , $p=0.037$). However, no relation existed in the non-obese group (114.8 ± 43.0 vs. 120.5 ± 48.4 , $p=0.384$). A multi-variate analysis indicated that only the obese patients' VAT values were

related to high GSs (OR1.012, 95% CI 1.000-1.024). A similar trend was observed for WC, but there were no significant differences in the univariate and multi-variate analyses.

Conclusions: A relationship was observed between high GS and a high volume of VAT only in the obese group. Surplus VAT may be a cause of elevated aggressiveness in prostate cancer. WC is a less accurate marker than VAT.

UP490

Androgen Receptor Phosphorylation at Serine 578 Is a Predictor for Intervention in an Active Surveillance Cohort

Payne S¹, Willder J¹, Fraser S², Horgan P¹, Leung H³, Underwood M², Edwards J¹

¹University of Glasgow, Glasgow, UK; ²Southern General Hospital, Glasgow, UK; ³Beatson Institute of Cancer Research, Glasgow, UK

Introduction and Objectives: Active surveillance is employed in men with low risk localised prostate cancer to avoid or delay treatment that may otherwise be unnecessary. The challenge in this population is to identify those patients who are more likely to progress and require treatment. Prostate cancer cell growth and disease progression is critically dependent upon androgen receptor (AR) function. One mechanism of AR activation is via its post-translational modification by phosphorylation. We investigated if the phosphorylation status of AR at serine site 578 (S578) in tumour cells represents a possible predictive biomarker for disease progression within a prospective active surveillance patient cohort.

Materials and Methods: Scansite 2.0 predicted AR serine site 578 (pAR S578) to be phosphorylated by PKC. Immunohistochemistry for pAR S578 was performed on hormone-naïve prostate cancer specimens obtained from 45 patients at the time of diagnosis undergoing active surveillance. Antibody specificity was confirmed by single band western blot and peptide competition assay. A weighted histoscore method was used to quantify protein expression (Kirkegaard et al, Histopathology, 2006). The level of cytoplasmic and nuclear pAR S578 expression in tumour cells was then correlated with clinico-pathologic factors and clinical outcome measures including time to biochemical relapse and time to intervention.

Results: Nuclear pAR S578 expression was not associated with clinico-pathological parameters, but high cytoplasmic pAR S578 was significantly associated with decreased time to intervention from diagnosis ($p=0.024$), increased expression of PSA at diagnosis ($p=0.014$) and increasing age at diagnosis ($p=0.014$).

Conclusion: High expression of pAR S578 in tumour cells is associated with a shorter time to intervention and may serve as a novel independent predictive bio-marker in prostate cancer for patients managed by active surveillance.

Cytoplasmic pAR S578 is a better predictor of poor outcome than nuclear pAR S578. Validation in an independent cohort and mechanistic work to confirm the role of PKC as kinase responsible for phosphorylation is required.

UP.491

Diagnostic Performance of Free-to-Total PSA Ratio to Predict Prostate Cancer in Men with and without Renal Dysfunction

Tadtaev S, Vasdev N, McNicholas T, Lane T, Adshead J, Boustead G
Hertfordshire and South Bedfordshire Urological Cancer Centre, Stevenage, UK

Introduction and Objectives: Serum total PSA (tPSA) is a weak predictor of finding prostate cancer (PCa) on biopsy in the "grey" diagnostic zone < 10 ng/mL. Free-to-total PSA ratio (%f/tPSA) has been used to improve specificity of tPSA. However, men with renal dysfunction (CKD stage ≥ 2) but not PCa, have spuriously elevated free PSA levels (fPSA), as the result of impaired elimination of this low molecular protein by glomerular filtration. CKD affects 47.12% (stage 2) and 10.10% (stage 3 and 4) of men older than 40, yet diagnostic performance of %f/tPSA in this cohort is unknown.

Materials and Methods: We evaluated records of 370 men with serum tPSA < 10 ng/mL who had primary TRUS biopsy over 24 months in 2009-2011, including any subsequent histology. MDRD equation was used for calculation of estimated glomerular filtration rate (eGFR) and standard diagnostic performance tests were employed with a threshold %f/tPSA value of 19% and any positive histology as the reference.

Results: The median patient age was 65 (43-86) years, median tPSA 6.3 (0.4-9.9) ng/mL, median %f/tPSA 13 (3-68%), median eGFR 82.3 (33.8-157.4) mL/min/1.73 m², median period between biopsy and case review 41 (30-53) months. Prostate cancer was detected in 46.49% of patients on initial biopsy and in further 4.86% on repeat biopsy/TURP after negative initial biopsy.

Conclusion: Diagnostic performance of %f/tPSA is associated with change in eGFR,

implying that patients with CKD are at risk of misdiagnosis, if decision to perform evaluation/biopsy is solely based on %f/tPSA levels. The exact diagnostic thresholds for %f/tPSA in patients with CKD are unknown. Therefore, eGFR should be established in all patients undergoing %f/tPSA test and its results interpreted with caution in those with renal impairment.

UP.492

The Prostate Cancer Survivorship Programme: A New Pathway for Cancer Survivors

Goonewardene S¹, Nanton V², Young A², Persad R³, Makar A⁴

¹Homerton University Hospital, London, UK;

²University of Warwick, Coventry, UK; ³Bristol Southmead Hospital, Bristol, UK; ⁴Worcestershire Acute Hospitals, Worcester, UK

Introduction and Objectives: Survivorship encompasses patients who have completed curative cancer management. Previously, survivorship follow-up was based in secondary care. Already overburdened clinics were full of survivors, which could have been followed-up in the community, putting additional pressure on already overburdened staff. In addition patients may receive brief clinic appointments, limited holistic care, and experience financial burdens. We have piloted a new community based model in prostate cancer survivors with over five hundred patients. On entering the programme, the patient would be discharged from clinic, and entered into a specially developed software database. This reviews new PSA results, triggering alerts if results are abnormal, resulting in a specialist nurse (CNS) bringing patients back to clinic for review. The programme is also supplemented by survivorship conferences once a year where patients have access to healthcare professionals and a range of information on prostate cancer related topics. We aim to evaluate this model with Pickering Institute patient questionnaires, find out what they want at a community based centre and GP perspective on this programme.

Materials and Methods: We have developed a team composed of PCTs, commissioners,

psychology, project managers and IT workers. Patients were entered into this programme over the past 3 years. Inclusion criteria specified patients must be: 2 years post radical prostatectomy with a negligible PSA reading, 3 years post radical radiotherapy (with or without hormones) with a stable PSA reading or 3 years post brachytherapy with a stable PSA reading. Patient questionnaires focused on distress, perceived control and quality of life (rated on a scale of 1-10). Focus groups were conducted to collate views of the overall scheme. We currently have 730 on this programme.

Results: We demonstrate patients do have psychological, emotional and social issues which are unaddressed. They also greatly want a patient centre, and specify needs including requirement for sexual health advisors, dieticians and psychologists.

Conclusions: We discuss ways in which these results can be used for development of the programme, including a user led system: better explanation of the system, PSA feedback, a budying system, and how a programme like this can be put into use for survivors across all specialities.

UP.496

Nomogram to Predict Insignificant Prostate Cancer at Radical Prostatectomy

Lee J¹, Jeh S¹, Kwon J¹, Jung H¹, Kang H¹, Cho K¹, Ham W¹, Lee J², Cho I³, Choi Y¹

¹Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea; ²Dept. of Urology, Cheil General Hospital and Women's Healthcare Center, Kwandong University College of Medicine, Seoul, South Korea; ³Dept. of Urology, Inje University College of Medicine, Gimhae, South Korea

Introduction and Objectives: Recently, several studies have reported the development of statistical models for the prediction of insignificant prostate cancer. However, nearly all data are derived from Western populations, which may differ from Asian populations due to genetic variation and differences in prostate cancer screening systems. Moreover, there are no user-friendly tools applicable for Asian men that allow clinicians to predict the probability of insignificant prostate cancer. Therefore, we developed a model predicting the probability of insignificant prostate cancer in Korean men by incorporating a detailed, quantitative assessment of biopsy results into a nomogram.

Materials and Methods: The study population consisted of 225 patients, who were treated at the Severance Hospital by radical prostatectomy without neoadjuvant therapy from September 2011 to December 2012. External validation was carried out using 80 men who were underwent radical prostatectomies between January 2013 and May 2013. Insignificant prostate cancer was defined as pathologic organ-confined disease and a tumor volume of 0.5 cc or less without

UP.491, Table 1.

| | eGFR > 90 | eGFR 60-89 (CKD 2) | eGFR 30-59 (CKD 3) |
|-------------|--------------------------|--------------------------|--------------------------|
| Patients | 125 | 215 | 30 |
| Sensitivity | 87.50% CI 75.92-94.80 | 80.00% CI 71.72-86.74 | 64.29% CI 35.18-87.11 |
| Specificity | 15.94% CI 8.25-26.74 | 24.21% CI 16.01-34.08 | 62.50% CI 35.47-84.71 |
| PPV | 45.79% CI 36.12-55.70 | 57.14% CI 49.29-64.74 | 60.00% CI 32.33-83.57 |
| NPV | 61.11% CI 35.77-82.44 | 48.94% CI 34.08-63.93 | 66.67% CI 38.41-88.05 |

Gleason grade 4 or 5. Multivariate logistic regression model coefficients were used to construct a nomogram to predict insignificant prostate cancer from five variables, including age, body mass index, preoperative serum PSA, prostate volume, prostate density, clinical stage, biopsy Gleason score, positive cores ratio and maximum % of tumor in any core. The performance characteristics were internally validated from 200 bootstrap resamples to reduce overfit bias.

Results: Overall, 50 (22.2%) patients had a so-called "insignificant" tumor in nomogram development cohort. PSA, PSA density, prostate volume, biopsy Gleason score, positive core ratio, maximum % of biopsy tumor and cT stage represented significant predictors of the presence of insignificant prostate cancer on the univariate logistic regression model. Multivariate analysis showed that PSA density, positive core ratio and biopsy Gleason score were independent significant factors for insignificant prostate cancer. The area under the curve of this nomogram was 90.33% and, mean absolute error in internal and external validation were 1.9% and 2.9%, respectively.

Conclusion: Our current nomogram provides sufficiently accurate information in clinical practice that may be useful to patients and clinicians when various treatment options for screen-detected prostate cancer are considered.

UP497

Pathological Features of the Index Tumor in Radical Prostatectomy Specimens: Implications for Focal Therapy

Kanao K, Kajikawa K, Kobayashi I, Morinaga S, Muramatsu H, Nishikawa G, Yoshizawa T, Kato Y, Watanabe M, Zennami K, Nakamura K, Sumitomo M

Aichi Medical University, Nagakute, Japan

Introduction and Objectives: Focal therapy has recently gained interest as a new method to control clinically localized prostate cancer (PCa). It has been suggested that focal therapy to the largest (index) lesion is sufficient in multifocal PCa, because non-index lesions are unlikely to contribute to disease progression. However, pathological features of the index and non-index lesions in prostate cancer are not fully evaluated. In this study, we compare the pathological features of index tumor in radical prostatectomy specimens with that of non-index tumors.

Materials and Methods: A total of 51 PCa surgical specimens were retrospectively analyzed. All foci in each prostate were outlined on pathology slides, digitally scanned and exported to 3D slicer software (www.slicer.org) to develop a 3D PCa model. All tumors were individually identified by the software. Gleason score and pathological stage were also individually determined. All tumor volumes were calculated using the program in the 3D slicer. When multifocal disease was observed, the index tumor was

considered the largest tumor as measured by volume, without considering its Gleason score. The pathological features of index tumor were compared with that of non-index tumors.

Results: A total of 236 tumors were detected in 51 specimens. The median number of tumors per specimen was 4.6 (range 1-13). The median tumor volume was 0.035 mL (range 1.2×10^{-4} to 7.2), and the median volume of the largest (index) tumor was 1.2 mL. Forty-four specimens demonstrated multifocal disease; 37 index tumors and 6 non-index tumors had a volume of ≥ 0.5 mL. Forty-six (90.2%) of 51 index tumors were graded highest Gleason score in the specimen. Twelve tumors were staged as pT3, but there were no specimen that did not include index tumor staged as pT3 but non-index tumor staged as pT3. In all, 3 non-index tumors with volume of ≥ 0.5 mL were graded Gleason 4+3 or more.

Conclusion: The results of this study suggest that more than 90% of index tumors have the highest Gleason score and pathological stage, but the possibility cannot be denied that non-index tumors with large volume and high Gleason score may harbor in the prostate.

UP498

The Relationship between Prostate-Specific Antigen and TNM Classification or Gleason Score in Prostate Cancer Patients with Low Prostate-Specific Antigen Levels

Izumi K, Maolake A, Kitagawa Y, Kadono Y, Konaka H, Mizokami A, Namiki M

Dept. of Integrative Cancer Therapy and Urology, Kanazawa University Graduate School of Medical Science, Kanazawa, Japan

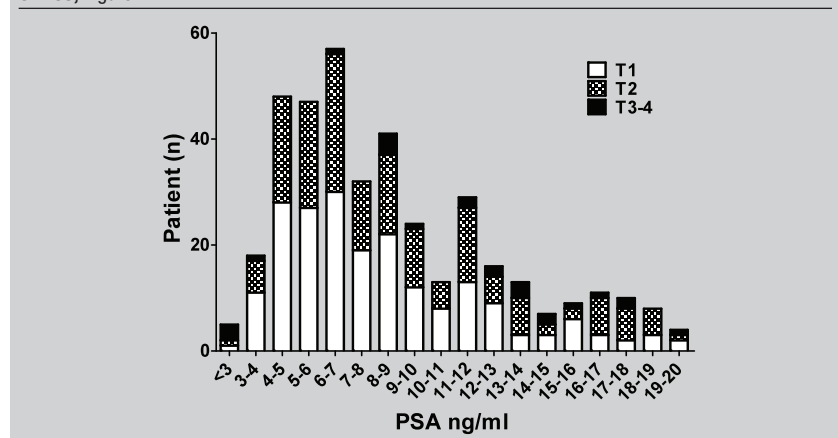
Introduction and Objectives: Prostate-specific antigen (PSA) is a useful biomarker for risk classification in prostate cancer patients. However, it is unclear whether in such patients, a low PSA level (<10 ng/ml) at diagnosis correlates to prognosis.

Materials and Methods: Of the 642 Japanese patients who underwent prostate biopsy and were diagnosed with prostate cancer at Kanazawa University Hospital from 2000 to 2010, 406 patients with a PSA level of <20 ng/ml were retrospectively reviewed.

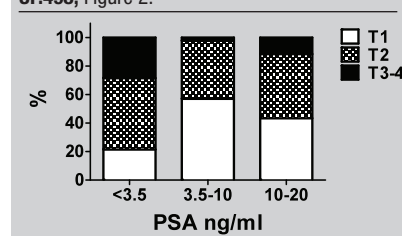
Results: PSA levels in 275 (68%) patients were <10 ng/ml. In patients with PSA levels between 3.5 and 20 ng/ml, the percentage of T1 stage decreased with an increase in PSA levels (Figure 1). However, the percentage of high T stage in patients with a PSA level of <3.5 ng/ml was significantly higher than that in patients having a PSA level of between 3.5 and 10 ng/ml ($P < 0.0001$, Figure 2). The percentage of metastases (N1 and M1) in patients with a PSA level of <3.5 ng/ml was also significantly higher than that in patients with a PSA level of 3.5–10 ng/ml ($P = 0.0025$).

Conclusion: Prostate cancer patients with a PSA level of <3.5 ng/ml at diagnosis had a more advanced stage of cancer compared to those with a PSA level of 3.5–10 ng/ml. The risk classification using PSA levels at diagnosis

UP498, Figure 1.



UP498, Figure 2.



may need to take this specific PSA range into consideration to better predict survival.

UP499

Tumour Cross-Sectional Area is an Independent Predictor of Gleason Upgrading in Low Risk Prostate Cancer When Measured in Radical Prostatectomy Specimens

Gallagher K^{1,2}, Good D^{1,2}, Stewart G^{1,2}, McNeill A¹

¹Dept. of Urology, Western General Hospital, Edinburgh, UK; ²University of Edinburgh, Edinburgh, UK

Introduction and Objectives: MRI has recently been proven to accurately measure prostate tumour volume (TV). This study aimed to determine if prostate tumour dimensions measured in laparoscopic radical prostatectomy (LRP) specimens were independently predictive of pathological Gleason upgrading in patients with low risk prostate cancer in order to determine the significance of prostate tumour measurements that may be made pre-operatively by MRI in the future.

Materials and Methods: Low risk (Gleason 3+3, PSA<10) patients undergoing LRP (2006-2013) were included. Dominant TV, tumour axial cross-sectional area (AXSA), and corresponding prostate gland measurements were made on digital photographs of 5mm sectioned whole mount LRP specimens using image analysis software. Multivariate analysis was used to determine if prostate tumour measurements were independently predictive of upgrading. Tumour AXSA was then examined using ROC curve analysis and 0.01cm² sequential assessments below the 25th centile of AXSA in upgraded tumours to find the cut off with best negative predictive value (NPV).

Results: A total of 164 patients were included (all TRUS Gleason 3+3). Sixty one were upgraded (all Gleason 3+4). PSA, number of positive cores and total percentage positive core length were included as co-variables with each tumour measurement in multivariate analysis (Table 1). At an AXSA cut off of 0.8cm² the NPV for upgrading was 0.93 (95%CI 0.82, 0.98). The area under the ROC curve was 0.73 (0.66, 0.81).

Conclusion: Tumour AXSA can be used to exclude Gleason upgrading in low risk prostate cancer with 93% certainty. Studies are now underway to validate these findings using MRI. If the findings can be translated to imaging, they would potentially alter our ability to guide patients with low risk prostate cancer regarding active surveillance versus radical treatment.

UP500

Assessing the Need for Diffusion Weighted and Contrast Enhanced Sequences in Multiparametric MRI for Active Surveillance Patients

Petrides N^{1,2}, Ridout A^{1,2}, Coe J^{1,3}, Emberton M^{1,2}, Allen C¹, Punwani S¹, Moore C^{1,2}

¹University College Hospitals, London, UK;

²University College London, UK; ³

Introduction and Objectives: Follow-up for active surveillance has traditionally been based on repeat PSA, digital rectal examination, and standard transrectal biopsy. The use of MR imaging may provide a non-invasive way to monitor men with stable disease. However, the definition of stability in MRI criteria is not defined. The RECIST criteria, widely used in oncology for assessing response to treatment, assesses lesions which are at least 10mm diameter. However, many men on active surveillance will have lesions smaller than this. Using multiparametric MRI, change can be assessed using volume alone or changes in the appearance of the disease on the different MRI sequences. We report these findings in patients with MRI defined disease progression.

Materials and Methods: Clinical and radiological databases were searched for men who had undergone more than one prostate MRI, and the electronic hospital record was then searched to find men who had not undergone any treatment in the intervening period. Baseline scans and follow-up imaging were assessed to identify those who had shown progression on MR over time and the changes in each MRI sequence documented.

Results: In total 42/196 patients showed MRI evidence of progression during follow-up (mean follow-up duration 2.7 years). Of those, 13 demonstrated an increase in the total volume of disease alone, 23 demonstrated changes in MRI characteristics upgrading the overall suspicion for aggressive disease on MRI and 6 showed changes in both. Comparing the different sequences (T2 images, diffusion weighted images and contrast enhanced images) 4 (17.3%) showed changes in all modalities, in 10 (43.5%) the main change was in contrast

enhanced images, in 5 (21.8%) on the T2 sequences and in 4 (17.3%) on the diffusion weighted images.

Conclusion: Each of the different MRI sequences used in multiparametric MRI can be useful in identifying disease progression and should be considered in men on active surveillance.

UP501

Lymph Nodes Landing Sites in Patients with Prostate Cancer Submitted to Laparoscopic Radical Prostatectomy with Extended Pelvic Lymph Node Dissection

Dobru J, Piotrowicz S, Powroźnik J, Muśko N, Nyk Ł, Borówka A

Dept. of Urology, Centre of Postgraduate Medical Education, European Health Center, Otwock, Poland

Introduction and Objectives: Radical prostatectomy (RP) is the mainstay therapy of patients with localized PCa. Although many efforts were undertaken to identify sentinel lymph node during RP, wide pelvic lymphadenectomy remains the most accurate way of regional lymph nodes (LNs) staging. Therefore, in intermediate and high risk prostate cancer, RP is recommended to be complemented with extended, pelvic lymph nodes dissection (EPLND). Aim: To assess the risk of nodal involvement in patients subjected to laparoscopic radical prostatectomy and to characterize lymph nodes landing sites.

Materials and Methods: Since February 2011 to February 2014, 209 laparoscopic RP (LRP) were performed, among them 109 (52.15%) with EPLND. Presacral and common iliac lymph nodes, external and internal iliac together with obturator lymph nodes were removed. **Results:** Mean number of removed LNs was 25.6 (from 3 to 44). Metastases within lymph nodes were found in 15 (13.7%) patients. In comparison to those without lymph nodes involvement, patients who were found to have LNs metastases had greater number of positive biopsy cores (3.08 vs. 5.0 p<0.01), maximum percentage of cancer in biopsy core (40.4 vs. 76.0 p<0.01), greater biopsy and specimen Gleason scores (6.5 vs. 7.4 and 6.5 vs. 7.7) and more frequently advanced clinical and pathological stage. There was no patient who had nodal infiltration without involvement of obturator nodes. The second most frequent landing site of prostate cancer was presacral area (27%). The majority of those (73%) with positive lymph nodes had locally advanced disease. **Conclusions:** Extended pelvic lymph nodes dissection should be performed in selected patients during LRP. The most frequent location of LNs metastases remains obturator fossa, however in half of the cases other lymphatic areas are also involved including presacral region.

UP.499, Table 1.

| | Upgrade (95% CI) | No Upgrade (95% CI) | Univariate p value | Multivariate p value |
|--------------------------|---------------------|------------------------|-----------------------|-------------------------|
| Total | 61 (37.2%) | 103 (62.8%) | - | - |
| Age | 60.4 (58.3, 62.3) | 60.0 (58.8, 61.3) | 0.23 | - |
| PSA | 6.12 (5.45, 6.75) | 5.49 (5.05, 5.92) | 0.072 | - |
| Cores positive | 3.6 (2.9, 4.3) | 2.9 (2.5, 3.3) | 0.079 | - |
| % core positive | 9.8 (6.9, 13.2) | 7.7 (5.8, 9.6) | 0.211 | - |
| DTV (cm ³) | 3.42 (2.70, 4.09) | 1.61 (1.22, 1.97) | <0.0001 | 0.001 |
| TAXSA (cm ²) | 2.34 (1.99, 2.73) | 1.36 (1.10, 1.61) | <0.0001 | 0.007 |

UP502

Analysis of the Surgical Treatment of Our Series of Distal and Mid-Penile Hypospadias
Nogueras-Ocaña M¹, Jimenez-Pacheco A²,
Tináut-Ranera J¹, Merino-Salas S¹, Zuluaga-
Gomez A¹

¹San Cecilio University Hospital, Granada,
Spain; ²Santa Ana Hospital, Granada, Spain

Introduction and Objectives: The objective of this study is to analyse our casuistry of distal and mid-penile hypospadias, with and without chordee, and to review surgical outcomes in distal hypospadias following Meatoplasty, MAGPI or Mathieu +/- resection techniques of prepuce or preputioplasty, the On-Lay island flap and Duckett techniques for the mid-penile condition.

Materials and Methods: All patients operated on for distal and mid-penile hypospadias between January 2000 and June 2013 were analysed. The variables analysed were: age, follow-up time, localisation of the meatus of the urethra, surgical technique used, existence of complications, hospital stay time, flowmetry result and final functional and aesthetic outcome.

Results: A total of 223 patients underwent surgery, aged between 18 months and 32 years, and with a follow-up period of between 6 months and 13 years. The localisation of the meatus was glandular 60 cases, balanopreputial sulcus 108, subcoronal 15 and mid-penile in 31 cases. A meatoplasty was performed in 50 cases, including 20 MAGPI, Mathieu in 122 cases, On Lay island flap 20 and Duckett in 11 cases, combining Byars flaps in 29 cases and Double-sided flap in 8 cases. Forty five cases presented incurvation, 35 of which were resolved by Nesbitt's technique by means of complete deglobing or section of the urethral plaque. Immediate post-operative evolution was favourable in 85.65%. The complications included 4 complete flap retractions, 9 fistulae and a further 10 cases which included preputial oedema, haematoma on the dorsal side of the penis, active bleeding of the gland and infection of the surgical wound, among others. A total of 14 re-operations were performed with a good definitive outcome. Outpatient hospital stay time was 1 day in the Meatoplasties and MAGPI, 4 days in the Mathieu technique, and 8 days in the On-lay and Duckett. The result of the flowmetry performed six months after the operation was favourable in 83.85%. The chordee was corrected in all cases. In the long term, functional and aesthetic outcome was satisfactory in 99.1%.

Conclusions: We may establish that the key to the success of our casuistry, in both distal and mid-penile hypospadias, lies in a good indication and meticulous performance of the surgical technique selected.

UP503

Surgical Tips and Tricks during Urethroplasty for Bulbar Urethral Strictures Focusing on the Accurate Localization of a Stricture: Results from a Tertiary Centre
Kuo T^{1,2}, Venugopal S¹, Inman R¹, Chapple C¹

¹Royal Hallamshire Hospital, Sheffield, UK;

²Singapore General Hospital, Singapore

Introduction and Objectives: There are several techniques to characterize and localize an anterior urethral stricture, e.g. preoperative retrograde urethrogram, ultrasonography and endoscopy. However these various techniques are associated with some limitations. The final determinant is intra-operative assessment as this yields the most information and defines what surgical procedure is undertaken. We present our intra-operative approach to localizing and operating on a urethral stricture.

Materials and Methods: A retrospective review of urethral strictures operated was carried out. All patients had a bulbar or bulboprostatic urethroplasty. All patients were referred to a tertiary center and operated on by 2 urethral reconstructive surgeons. Intra-operation identification of the stricture was performed by cystoscopy. The location of the stricture is demonstrated on the urethra externally by external trans-illumination of the urethra and comparison with the endoscopic picture. This is combined with accurate placement of a suture through the urethra, at the distal extremity of the stricture, verified precisely by endoscopy. Postoperative follow-up data for each patient was recorded and analyzed.

Results: Thirty-five male patients were operated for bulbar stricture during a two-year time period. Mean follow-up was 13.8 months (range 2-43 months). Mean age was 46.5 years (range 17-70 years). Three patients had undergone previous urethroplasty and 26 patients had previous urethrotomy or dilatation. All patients had preoperative retrograde urethrogram and most (85.7%) had endoscopic assessment. The majority of patients (48.6%) had stricture length >2-7cm and 45.7% of patients required buccal mucosa graft. There were no intraoperative complications. Postoperatively, 2 patients had UTI. All patients were assessed post-operatively by flexible cystoscopy. Only one patient required optical urethrotomy subsequently for recurrence.

Conclusion: Our intraoperative approach and philosophy to anterior urethral stricture assessment provides a clear step wise approach, regardless of which type of urethroplasty is eventually chosen (i.e. anastomotic disconnected or heineke-miculicz) or augmentation (dorsal, ventral, or augmented roof strip). It is useful in all cases by allowing a precise localization of incision of the urethra, whether the stricture is simple or complex.

UP504

Treatment of Rectourethral Fistula after Radical Prostatectomy with Gracilis Muscle Interposition
Caballero J, Borrat P, Gili J, Navarro A, Muñoz A, Martí L, Ristol J
Hospital Universitari Mútua de Terrassa, Barcelona, Spain

Introduction and Objectives: To describe our experience of treating patients with rectourethral fistula secondary to radical prostatectomy by a transperineal approach with interposition of unilateral gracilis muscle flap.

Materials and Methods: A prospective evaluation of all patients with postoperative rectourethral fistula after radical prostatectomy (open and laparoscopic) treated in our Hospital. We perform the technique of transperineal approach, reparation of urethra and rectum, and interposition of gracilis muscle flap. All procedures were made by the same multidisciplinary team: a senior colorectal surgeon, and a senior urologist.

Results: Between November 2009 and October 2013, seven patients with postoperative rectourethral fistula were treated. Three of them had received previous treatments without success with different procedures and four patients were primarily repaired by this technique. Six patients had a fecal diverting stoma. One of them was referred to our institution after failed multiple previous attempts of repair, the last of which was a rectal resection and a low colorectal anastomosis. After a median follow-up of 36.4 months (range 6-53), the seven fistulas had successfully healed, and they remain asymptomatic without urinary diversion except the patients with previous urinary incontinence in whom this problem persists. Digestive transit is already restored in all patients. No intraoperative or infectious complications were detected.

Conclusion: Perineal simple reparation and gracilis muscle transposition is a safe and effective technique and it must be considered as the first option for treating postoperative rectourethral fistulas after prostate cancer surgery.

UP505

Rectourinary Fistula Repair Using Gracilis Muscle Flaps: Surgical Outcomes
Eswara J¹, Raup V², Brandes S²

¹Brigham and Women's Hospital, Harvard Medical School, Boston, USA; ²Washington University, St. Louis, USA

Introduction and Objectives: Bladder outlet dysfunction (BOD) is a common complication of pelvic radiation. Patients who receive pre-operative radiation are predisposed to developing BOD due to bladder neck contracture (BNC) or stress urinary incontinence (SUI). Here, we review our experience with gracilis flap fistula repairs for rectourinary fistulae (RUF) in patients who underwent pelvic radiation.

Materials and Methods: We reviewed 20

patients who underwent a gracilis flap repair of a RUF between the years 2003 and 2013. Patients were assessed for post-operative fistula closure and BOD due to SUI or BNC. Possible risk factors associated with repair failures were examined, such as age, hypertension, diabetes, coronary artery disease, smoking, obesity, ASA score intraoperative urinary/fecal diversion, and prior radiation.

Results: The mean age in our series was 62 years (50-73) at time of surgery with median follow-up of 23.6 months (3.6-64.9). Among patients who underwent pelvic radiation prior to fistula repair, 11/13 (85%) developed BOD compared to 2/7 (29%) who were not radiated ($p=0.02$). Flap failure was noted in 4/13 radiated patients vs. 3/7 non-radiated patients ($p=0.65$). Of the 7 flap failures, revisions included repeat gracilis flap (2), coloanal pull-through (2), omental flap (1), sliding flap (1), and rectal advancement flap (1). The median time to revision was 6.7 months (3.5-24.9).

Conclusions: Flap failure and bladder outlet dysfunction are more common in patients who underwent pre-operative radiation prior to gracilis flap rectourinary fistula repair. Even in successful fistula repairs, patients may still experience substantial urinary incontinence. Therefore, patients should be carefully counseled about all possible risks of gracilis flap genitourinary fistula repair as well as the option of performing permanent urinary diversion as the primary therapy.

UP506

Urinary-Cutaneous Fistulae in Patients with Neurogenic Bladder

Raup V¹, Brandes S¹, Eswara J²

¹Washington University, St. Louis, USA;

²Brigham and Women's Hospital, Harvard Medical School, Boston, USA

Introduction and Objectives: Neurogenic detrusor overactivity can cause significant incontinence, often managed non-surgically with intermittent self-catheterization, condom catheterization, or chronic foley placement. Patients with neurogenic bladder develop urinary-cutaneous fistulae from trauma, chronic decubitus ulcers, infection, or long-term catheterization. Here, we review our experience with neurogenic bladder patients who develop urethrocutaneous or vesicocutaneous fistulae.

Materials and Methods: We reviewed 21 patients with neurogenic bladder who developed urinary-cutaneous fistulae between 1998 and 2013. The clinical endpoints of the study were development of urinary-cutaneous fistula, fistula repair failure, and need for permanent urinary diversion. Possible risk factors associated with repair failures were examined.

Results: There were 21 patients in this series with a mean age of 39.5 years (23-76) at time of surgery and median follow-up of 67 months

(1-179). Median ASA score was 3. Etiology of neurogenic bladder included spinal injury (18), transverse myelitis (1), cerebral palsy (1), and congenital abnormalities (1). Causes of urinary-cutaneous fistulae included leakage through decubitus ulcers (7), condom catheter malfunctions (5), infections (3), trauma to pelvis (1), and unknown causes (5). Average size of the urinary cutaneous fistulae was 3 cm. Fourteen patients had their fistulae repaired surgically, with 12 patients eventually requiring either a diversion with a suprapubic (SP) tube (7/12, 58%), repeat repair (2/12, 17%), or repeat repair with eventual diversion with SP tube (3/12, 25%). Fistulae repairs performed included primary repair, advancement flaps, urethroplasties, tunica interposition flaps, and onlay flaps. Seven patients underwent urinary diversion upon presentation, with either ileal conduit (5/7, 71%) or an SP tube (2/7, 29%). In total, 17/21 patients eventually required permanent urinary diversion (81%), 15/17 of which were with a SP tube (88%) and 2/17 with an ileal conduit (12%).

Conclusions: Urinary-cutaneous fistula repairs in patients with neurogenic bladder should be undertaken with caution. Patients who undergo a surgical repair of their fistula are likely to experience a long and complicated series of repeat repairs with eventual need for a permanent urinary diversion.

UP507

Lower Urinary Tract Injuries Associated with Pelvic Fractures: A Single Center Experience

Pejic T¹, Dzamic Z¹, Acimovic M¹, Rafailovic D¹, Hadzi-Djokic J²

¹Clinical Center of Serbia, Clinic of Urology,

Belgrade, Serbia; ²Serbian Academy of Sciences and Arts, Belgrade, Serbia

Introduction and Objectives: Urinary bladder and/or urethral injuries occur in 15% of patients with pelvic fractures. The most common causes of pelvic fracture are motor vehicle and motorcycle accidents, motor vehicles striking pedestrians, and falls.

Materials and Methods: The study included the patients treated in the Emergency Center between 2000 and 2009. Of 7445 patients, 894 patients (12%) had the urinary tract injury, while 376 patients (5%) had pelvic fracture. Fifty five patients with pelvic fractures (14.6%) had bladder or urethral injuries: 31 patients had bladder injury, 22 patients had urethral injury, and two patients had associated injuries of the posterior urethra and the bladder neck.

Results: All injuries of the urinary bladder were treated by surgical exploration, cystostomy, suture of the bladder lesions and urethral catheterization. Eighteen patients (82%) with urethral injury underwent primary cystostomy with urethral reconstruction and catheterization, while four patients (18%) underwent only cystofix-cystostomy.

Conclusion: Blunt lower urinary tract injuries are relatively often associated with pelvic fractures. The majority of these patients require primary surgical treatment.

UP509

Comparative Study between Surgical and Laparoscopic Treatment of Uretero Pelvic Junction Obstruction

Mahmoud M, Faisal M, Faraghal S, Nazim M, El Emam A, Elsothi I

Dept. of Urology, Al Azhar University Hospitals, Cairo, Egypt

Introduction and Objectives: The aim of this work is to compare open dismembered versus laparoscopic pyeloplasty in treatment of uretero pelvic junction (UPJ) obstruction regarding operative time, blood loss, intra and post operative complications, analgesic requirement and hospital stay.

Materials and Methods: A prospective and retrospective study was done on 27 patients who underwent pyeloplasty (17 open and 10 laparoscopic) from May 2009 to February 2011 at Al-Azhar University Hospitals. All laparoscopic pyeloplasties were performed transperitoneally. Standard open Anderson Hynes pyeloplasty was done for open group. Patients were followed with IVU at three months and DTPA scan at six months. Perioperative parameters including operative time, analgesic use, hospital stay, and complication and success rates were compared.

Results: Mean total operative time with stent placement in LP group was 164min (120-220min) compared to 90min (70-110min) in OP group. The post operative diclofenac requirement was significantly less in LP group than in open group. The postoperative hospital stay in LP was mean 4.8 days (4-12 days) which was not significantly less than the open group mean of 5.05 days (4-7days).

Conclusion: Open pyeloplasty remains the gold standard treatment for UPJ obstruction. Laparoscopic pyeloplasty can be a substitute for skilled surgeons.

UP510

Emergency Cystectomy for Severe Bleeding Complications of Radiation Therapy

Volkmer B¹, Hautmann R², Kahlmeyer A¹, Bartsch C³, Bartsch Jr. G³

¹Klinikum Kassel, Kassel, Germany; ²University of Ulm, Ulm, Germany; ³University of Frankfurt, Frankfurt, Germany

Introduction and Objectives: Irradiation of the true pelvis affects the bladder and causes radiation cystitis, which may result in recurrent and severe bleeding complications. If all less invasive therapies fail, urologists may choose an emergency cystectomy as a final option. Our aim was to evaluate the outcome of these procedures.

Materials and Methods: Among the complete cystectomy series at 2 institutions (Ulm:

10/1985 – 03/2009: n=1614; Kassel: 01/1977–03/2014: n=1386) all cases with emergency cystectomy for radiation cystitis were identified. A complete follow-up until 03/14 or until death was obtained.

Results: A total of 7 cases (0.2%) were identified (2 female, 5 male patients, age 54 – 87 years). They had radiation therapy for bladder cancer (n=1), prostate cancer (n=3), colorectal cancer (n=1) and gynecologic tumors (n=2) 2.5 – 28 years before. Only in the patient with bladder cancer, there was residual tumor in the cystectomy specimen. All patients had a bladder capacity < 100 ml preoperatively. One patient had a recurrent bleeding from a prevesical arterio-ureteral fistula having developed with long-term stenting. In the other cases bleeding was caused by radiation cystitis. Four cases had a bladder rupture during evacuation of clots. In these cases, we performed open surgery immediately. In the other patients, we at least once tried to perform an embolization of the internal iliac arteries without success. Five out of 7 patients had grade 4–5 complications according to the Clavien classification. All patients needed a prolonged ICU treatment due to respiratory failure (median: 31 days). Two patients died from septicemia within 6 weeks postoperatively. Three patients died within 2 years after cystectomy (myocardial infarction, gastric cancer, progressive bladder cancer). Three patients are alive at 2, 4, and 14 months postoperatively. The overall survival rate at 12, and 24 months was: 56.3% and 0%.

Conclusions: Emergency cystectomy means a high morbidity and procedure-related mortality to a population with a per se low performance status and short life expectancy. It is to be considered a high-risk procedure that should remain the final option, if all other less invasive therapies fail.

UP511

Reversal Phalloplasty in Regretful Male to Female Transsexuals after Sex Reassignment Surgery

Bizic M¹, Kojovic V², Stojanovic B¹, Majstorovic M¹, Vujovic S², Duisin D², Milosevic A², Djordjevic M²

¹University Children's Hospital, Belgrade, Serbia;

²School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objectives: Sex reassignment surgery (SRS) has proven to be an effective intervention for the patient with gender dysphoria. In general, it's reported that transsexuals who have undergone gender reassignment surgery are happy to have done so. However, there are some who regret their decision and need reversal surgery. This review is based on our experience with five patients who came to regret their decision after male to female surgery.

Materials and Methods: Between November

2010 and September 2013, five male patients aged 31, 35, 37, 49 and 53 years with a previous male to female sex reassignment surgery, underwent reversal phalloplasty. Preoperatively, they were additionally examined by three independent psychiatrists. Surgery included three steps: removal of female genitalia, total phalloplasty with microvascular transfer of the musculocutaneous latissimus dorsi flap and urethral lengthening with penile prostheses implantation.

Results: Follow-up period was from 6 to 39 months (mean 17 months). Good postoperative results were achieved in all patients. In two patients, all surgical steps have been completed; one is currently waiting for penile implants, while two patients decided against penile prosthesis. Complications were related to urethral lengthening, two fistulas and one stricture, respectively. All complications were repaired by minor revision. According to patients' self-reports, all patients were pleased with the esthetic appearance of their genitalia and with their significantly improved psychological status.

Conclusions: Most transsexuals are contented with their decision following gender reassignment surgery, with only a few regretting it. Reversal surgery is indicated only after a new cycle of preoperative psychological and endocrinological treatment. Further insight into the characteristics of persons with postoperative regret would facilitate future selection of applicants eligible for SRS. Another recommendation is to actively search for individuals who have come to regret their decision and to try to systematically describe their life and treatment histories.

UP512

Tadalafil as a Regular Therapy Regimen after Surgical Treatment of Peyronie's Disease

Kojovic V, Milosevic A, Durutovic O, Bojanic N, Tulic C, Djordjevic M

School of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objectives: Incision or excision of the plaque followed by grafting of the defect presents broadly accepted procedure for surgical treatment of Peyronie's disease in patients with preserved erectile function. Herein, we present our experience with regular usage of tadalafil in order to prevent postoperative graft retraction in these patients.

Materials and Methods: Between January 2004 and October 2013, 97 patients (aged 42 to 63 years) with Peyronie's disease underwent surgical treatment. All patients preoperatively reported preserved erectile function. After lifting of neurovascular bundle, tunica albuginea was incised and opened at the plaque region to correct the deformities. Plaque was incised or completely or partially excised and defect was grafted using human pericardium in 32 patients, porcine dermal graft in 37 patients and equine pericardium in 28 patients.

Postoperatively all patients were advised to use tadalafil, 5 mg every day, for one month, in order to prevent graft shrinkage and recurvation of the penis. After that period vacuum or stretching device was recommended to all patients in following six months.

Results: The median follow-up was 57 months (ranged 6 to 122). During this period 89 patients (92%) had straightened penis. Eight patients reported recurvation of the penis and additional surgical procedure was necessary to correct the deformity. Ten patients reported transitory numbness of the glans, and eight patients complained to diminish sexual desire. Ninety patients (93%) reported preserved erectile function with ability for sexual intercourse. The most commonly reported side effects of tadalafil therapy were headache (9%), nasal congestion (7%), muscle-ache (7%) and dyspepsia (5%).

Conclusion: Tadalafil increased penile blood flow and induced periodical postoperative erections in patient who underwent grafting procedure as a treatment of Peyronie's disease. This way retraction of the graft and recurvation was less possible to occur. Regular postoperative use of tadalafil could be important step for the successful outcome in these patients.

UP513

Converting an Orthotopic Urinary Diversion to an Ileal Conduit: Technical Considerations and Challenges

Swain S, Ali A, Katkooori D, Parekh D, Manoharan M

Miller School of Medicine, Miami, USA

Introduction and Objectives: Many of the Patients with muscle invasive bladder cancer are treated with cystectomy and orthotopic urinary diversion. However, an orthotopic urinary diversion may be converted into an ileal conduit in clinical scenarios such as urethral recurrence of bladder cancer or fistula disease involving the neobladder. The surgical challenges encountered during such a procedure include difficulty in identifying the initial uretero-neobladder anastomosis, the need to de-tabularise the neobladder, inadequate length of the ureters and the ileal chimney to bring it out as a stoma. We describe our surgical technique in converting an orthotopic urinary diversion to an ileal conduit. **Materials and Methods:** A retrospective review of all patients who had undergone radical cystectomy and orthotopic urinary diversion between 2003 and 2010 was performed. Patients with initial orthotopic urinary diversion who required subsequent ileal conduit conversion were included in the study. Their history, physical examination and pathology were reviewed. The indications for conversion, the operative time as well as the post-operative complications were recorded. Here we discuss our modified Hautmann orthotopic bladder technique and compare it to other established

orthotopic urinary diversions in relation to challenges faced during conversion to ileal conduit. In our modification: we take 10-15cm of proximal ileum as the afferent limb, which we direct towards the right side as the non-tabularized ileal chimney and anastomose both the ureters into it. During conversion to ileal conduit it was simply be disconnected from the neobladder pouch and brought out through the abdominal wall without requiring any additional bowel resection, ileal ureteric anastomosis or ureteric mobilization. In case of conversion of pure hautmann neobladder to ileal conduit, the ureteral anastomosis has to be disconnected and anastomosed, also in case of studder bladder there will be twisting of the ileal afferent limb when it would require to be brought out through the abdominal wall. Also we regularly place omentum over our neobladder thereby reduce incidence of fistula formation as well as reducing possible adhesion between the neobladder and anterior abdominal wall, making the reoperation during ileal conduit conversion a relatively simple affair.

Results: A total of 5 patients had conversion of an orthotopic urinary diversion to an ileal conduit. Of the 5 patients, 3 were male and 2 were female. All had muscle invasive urothelial carcinoma. Reasons for conversion include urethral recurrence (2 patients), fistula disease (2 patients) and incontinence (1 patient). Also there was adequate length of the ileal afferent limb to reach the abdominal wall as it elongates over a period of time. The average operative time was 110 minutes. There was no major post-operative complication.

Conclusion: Conversion from our modified orthotopic urinary diversion to an ileal conduit is simple and can be done with minimal surgical morbidity to the patient. The ureteric-ileal anastomosis is not explored or mobilised from their position in the right iliac fossa.

UP514

A Novel Urethral Catheter Design to Guide Safer Placement and Both Prevent and Minimize Risk of Urethral Balloon-Inflation Injury

Garcia M¹, Wu A¹, Blashko S¹, Aaronson D²

¹University of California San Francisco, San Francisco, USA; ²Kaiser Medical Foundation Northern California, Oakland, USA

Introduction and Objectives: Iatrogenic urethral injury due to urethral balloon-inflation occurs regularly but with unknown incidence. Manufacturers have, to date, not incorporated any safety-oriented modifications into their catheter design. We sought to: 1) Explore the overall number of non-infectious catheter related complications in a nationally representative dataset; 2) Create novel catheter design modifications designed to guide safer catheter placement and mitigate urethral trauma caused by urethral

balloon-inflation; 3) Manufacture working prototypes of our catheter; 4.) Test our catheter-prototypes on human cadavers and adult pigs.

Materials and Methods: A cross-sectional analysis of the 2006 to 2008 National Inpatient Sample was performed (a 20% stratified sampling of non-federal U.S hospitals), using ICD-9-CM diagnostic codes to identify the national annual numbers of catheter related complications in hospitalized patients. Standard (BARD™) 16-Fr. catheters were modified by thinning out a circumferential area of the balloon-port shaft, and painting this area bright-red, so that when the retention balloon is inflated within the urethra, this thinned area ("Safety Balloon") expands, and serves to: 1. Minimize filling and pressure upon the urethra, and 2. Visually alert the operator. We measured pressure within the balloon-port during filling within the bladder and urethra using fresh human-cadavers and live-adult pigs (N=8) under anesthesia, followed by histologic analysis. We determined the lowest filling-volume **necessary to activate the "safety balloon" only** when the retention balloon was filled within the urethra.

Results: Over this time period, 21,566 -111,353 patients experienced a non-infectious catheter related complication. Mean patient age was 68.4 (SD=18.8); 46.2% required a procedure such as cystoscopy or suprapubic-catheter placement. Balloon-port pressure after inflation within the bladder was similar among standard catheters and our catheter prototype. Immediately upon inflation within the prostatic and bulbar urethra of both cadavers and pigs, the "safety balloon" visibly. Mean balloon-port pressure was 60% lower in our catheter prototype. Porcine model histologic analysis showed minimal to no urethral injury using our catheter as compared to a standard BARD catheter.

Conclusions: Non-infectious catheter-related complications occur regularly and are likely under-reported. The simple, intuitive, inexpensive design modifications we describe appear to reduce the damaging pressure exerted upon the urethra during urethral balloon-inflation.

UP515

Histopathological Characteristics of Buccal Mucosa Grafts after Urethroplasty

Engel O, Soave A, Steurer S, Dahlem R, Rink M, Fisch M

University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Introduction and Objectives: Histopathological changes of buccal mucosa grafts after urethroplasty and years of urine-exposure are unclear. Thus, the aim of this study was to histopathologically investigate the natural history of transplanted buccal mucosa grafts.

Materials and Methods: Between November 2012 and October 2013, we prospectively enrolled 22 patients with a diagnosis of recurrent

urethral stricture following buccal mucosa urethroplasty. Intraoperatively we retrieved a sample of the former buccal mucosa graft from the urethra, a sample of healthy urethra, a sample of freshly harvested buccal mucosa from the inner cheek and a sample of fibrotic tissue from the area of the current stricture. Uro-pathologists performed meticulous histopathological examination of all tissue samples using Hematoxylin and Periodic-acid Schiff reaction following a standard protocol.

Results: The mean interval from the initial to the current buccal mucosa urethroplasty was 22.2 months (range: 4.1 – 76.0). The mean stricture length at the time of the repeat urethroplasty was 52.7 mm (range: 30 – 70). The initial urethral buccal mucosa graft completely preserved its histological characteristics of oral mucosa in all patients. These characteristics were locally confined, typically thick sheets of non-keratinized squamous epithelium with a stratum spinosum compared to the rather thin layer of typical urethral squamous metaplasia. The initial buccal mucosa graft was neither partially nor entirely overgrown with urethral tissue.

Conclusion: Buccal mucosa grafts retain their histopathological characteristics and are not overgrown with urethral tissue after urethral engraftment and exposure to urine. These findings improve our understanding why buccal mucosa grafts show superior outcomes in urethral reconstruction compared to artificial materials.

UP516

The Effect of the Bladder Take Down on Vesicourethral Anastomosis and Urinary Incontinence in Patients with Localized Prostate Cancer

Park K, Kim S, Kim Y, Huh J

Jeju National University, Jeju, South Korea

Introduction and Objectives: Postoperative urinary incontinence after robot assisted radical prostatectomy (RALP) is one of the most bothersome complications that affects to patient's daily life. Time to recovery from postoperative urinary incontinence is important in patients' satisfaction. We evaluate the effect of degree of bladder takedown on urethrovesical anastomosis and continence.

Methods and Materials: We prospectively analyzed 60 patients who underwent robot assisted laparoscopic prostatectomy for prostate cancer at our institute from March 2013 to August 2014. Patients were randomly assigned into two groups, Group I, 30 patients underwent deperitonization of lateral of bladder above the level of vas until exposing the both vas, the Group II was done below it and cutting the vas. We compared the anastomosis time and postop continence. Defining continence as patients being pad free, continence at 1, 3, and 6 month were checked.

Results: There were no significant differences

in age, body mass index, membranous urethral length, prostate volume, results of neurovascular bundle saving and between urethrovesical anastomosis leaking between both groups. Anastomosis time were mean 25.5 min (16 – 35min) in Group I and 23.4 min (17.5-33min) in Group II ($P = 0.654$). Cumulative number of patients, who recovered from incontinence at postoperative 1, 3, and 6 months in Group I, were 9 (30%), 14 (46.6%) and 22 (73.3%), respectively. In Group II, cumulative number of patients were 10 (33.3%), 16 (53.3%) and 21 (70%), respectively. There was no difference in time to recovery of urinary incontinence between two groups.

Conclusion: Wider deperitonization of bladder lateral attachment would not meaningfully affect the result of urethra-vesical anastomosis and continence in RLRP.

UP517

Fate of Acute Scrotum in the Emergency Room

Cho J¹, Lee H¹, Ham W², Kim S³, Jeong T³, Moon H¹, Lee T¹, Park S¹

¹Hanyang University College of Medicine, Seoul, South Korea; ²Yonsei University College of Medicine, Seoul, South Korea; ³Myongji Hospital, Goyang, South Korea

Introduction and Objectives: Acute scrotum is a common acute condition in male requiring prompt accurate management. The objective of this article was to evaluate symptoms, physical examination, and radiologic evaluation in emergency room (ER) with acute scrotum.

Materials and Methods: Retrospective review of emergency department records for male with acute scrotum from 2008 to 2012 was performed. Clinical symptoms, urine analysis, blood test, radiologic and surgical findings, and surgical results were analyzed.

Results: Retrospective review was performed on 84 patients with acute scrotum admitted to ER from 2008 to 2012. The mean age of patients was 20.5 years. The common signs were pain (64.29%), pain and swelling (33.33%), and pain, swelling and redness (2.38%). Twenty seven has leukocytosis (32.1%), each 8 had fever (9.5%) and pyuria (9.5%). Sixty patients were treated by conservative therapy, and 24 by surgery. Fourteen of 24 with surgery had torsion of testis on scrotal sonogram, 4 had normal. Orchiopexy (87.5%) and orchiectomy (12.5%) were performed as surgical treatment. Testicular torsion (n=15), torsion-detorsion (n=3), epididymitis (n=3), and appendix testis torsion (n=1) were taken orchiopexy and one had hydrocelectomy with orchiopexy due to hydrocele. Orchiectomy was performed who had testis infarction (n=2), and testicular rupture (n=1). Unanimous findings between scrotal sonography and surgical findings were 11 cases but 13 had different impression which

UP517, Table 1. Comparison of Scrotum Ultrasonography Findings and Scrotum Exploration

| Scrotum ultrasonography | Scrotum | n (%) |
|-------------------------|-------------------|------------|
| Epididymitis | Hydrocele | 1 (4.17) |
| Testis torsion | Testis torsion | 10 (41.67) |
| | Torsion-Detorsion | 3 (12.5) |
| | Testis appendix | 1 (4.17) |
| Scrotum hematoma | Testis rupture | 1 (4.48) |
| Varicocele | Epididymitis | 1 (5.97) |
| Unremarkable finding | Testis torsion | 3 (12.5) |
| | Epididymitis | 1 (4.17) |
| Testis appendix torsion | Testis torsion | 1 (4.17) |
| Testis infarction | Testis infarction | 1 (4.17) |
| Torsion-Detorsion | Testis torsion | 1 (4.17) |
| Total | | 24 |

had normal findings on scrotal sonography but surgical finding was testicular torsion (Table 1).

Conclusion: The difference between clinical diagnosis and scrotal sonography were over fifty percent in ER. Although the accuracy of imaging is quite good, ultrasound imaging in the case of acute scrotum have a degree of error and inaccuracy. So patients with acute scrotum need to be performed careful physical examination. Suspicion of testicular torsion would be considered in case of acute scrotum leading to prompt surgical exploration.

UP518

Durability of Stomal Revisions of Catheterizable Channels

Pagliara T¹, Kalyanaraman B¹, Hoversten P², Fleck J³, Elliott S¹

¹Dept. of Urology, University of Minnesota, Minneapolis, USA; ²University of Minnesota Medical School, Minneapolis, USA; ³University of Minnesota, Minneapolis, USA

Introduction and Objectives: Up to 55% of catheterizable channels will develop stenosis. This is often managed with dilation but recurrent stenosis is common. Revision surgery for stenosis is not well described. We sought to describe the strategies and success of surgical revision or replacement for catheterizable channel stenosis.

Materials and Methods: We retrospectively reviewed the charts of all patients who underwent catheterizable channel revision or replacement from 2007 to 2013 for stomal stenosis or difficult catheterization at the University of Minnesota. The primary outcome was continued ability to catheterize the channel post-operatively without surgical dilation or revision. Secondary outcomes included channel continence and post-operative complications.

Results: A total of 21 patients were identified, ranging in age from 17 to 79 with mean

follow-up of 19 months (0.5-80). Seventy six percent (n=15) were able to catheterize post-operatively without further intervention; these were further categorized by Y-V plasty above/below the fascia as or by replacement of all/part of the channel. Sixty percent (n=4) treated by Y-V plasty and 81% treated by replacement of part/all of the stoma did not require additional intervention (p=0.28). Of the 6 with recurrence, 1 was managed with an indwelling catheter, 2 underwent endoscopic dilation and 3 underwent another channel revision or replacement. Nineteen percent (n=4) reported more than minimal (bothersome and new) incontinence. Post op complication rates were Clavien Grade I in 43%, Grade III in 5% and Grade V in 5%.

Conclusion: Rates of surgical intervention after stomal revision surgery are similar to those reported after initial channel creation. There was no statistical difference in success between those treated with Y-V plasty vs. more complicated stomal revision. Incontinence is not unexpected after revision but major complications were rare.

UP519

What Are the Long-Term Effects of Cystoplasty?

Frost A, Fadel M, Cole A, Bugeja S, Andrich D, Mundy A
University College London Hospital, London, UK

Introduction and Objectives: This study evaluates patients having had augmentation cystoplasty many years ago, with particular reference to complications and preservation of renal function in the long-term.

Materials and Methods: A total of 162 of 276 patients undergoing augmentation cystoplasty by a single surgeon, and with a minimum of 20 years (mean 24 years) follow-up, were analysed retrospectively. Ninety three were male and 69

female. Mean age at the time of initial surgery was 25 years (range 4.3–73 years); 127 (78%) also had an artificial urinary sphincter (AUS). Outcomes were assessed at 1, 5, 10, 15, 20 and 30 years.

Results: The most common complication in the long-term was recurrent urinary tract infection (UTI), occurring in 19% of patients. Bladder stones developed in 10% of patients. Complications requiring surgery occurred more commonly after 10 years. Redo-cystoplasty was required in 7% of patients after a mean of 11 years, and urinary diversion/Mitrofanoff was necessary in 9% at a mean of 12 years. Malignant transformation was detected in 2 patients (mean 28.5 years post-op). Overall the renal function decreased at the expected physiological rate (0.75ml/min/year) with a mean decrease in eGFR of 23.5ml/min over 30 years. However, eGFR decline was more marked in those having had surgery aged 20–39 years compared to those aged 19 or under (mean 30.6 vs. 22.9ml/min). Those with acquired neuropathic bladder disorders also had a more rapid deterioration compared to patients with spina bifida (mean 28.6 vs. 7.2ml/min). There was no significant difference between the lifespan of the AUS in patients performing intermittent self-catheterisation compared to those voiding spontaneously (4.6 vs. 5.1 years). The urethral erosion rate was also similar between the two (47 vs. 53%).

Conclusion: In the long-term the commonest problems with cystoplasties are recurrent UTIs and bladder stones. Renal function declines more rapidly in patients with acquired neuropathic disorders than would be expected, though these patients also tend to be older at the time of surgery. These patients in particular should be counselled about these potential long-term problems, and the need for routine surveillance of their renal function.

UP520

Surgical Management of Massive Localized Lymphedema of the Scrotum

Van Lierop D, Gelman J
University of California, Irvine, USA

Introduction and Objectives: Lymphedema of the male external genitalia is a rare disease. With the growing prevalence of morbid obesity, an entity known as massive localized lymphedema (MLL) was recognized in 1998. Previous reports have described techniques for the excision of scrotal lymphedema of various etiologies, but there have been no case series to date that focus on excision of MLL of the scrotum. Our series highlights particularly challenging cases, as their size exceeds that of any in the literature.

Materials and Methods: A total of 5 patients underwent complex reconstruction of MLL of the scrotum between 2008 and present. An incision was made in the midline of the scrotum,

and this was continued posteriorly until the penis was located. The dissection was then carried laterally to isolate the spermatic cords and testicles. Posterior and lateral skin flaps were used for primary closure.

Results: Mean (range) patient age was 48 years (34–58). All patients were morbidly obese with mean pre-operative BMI of 57.8 kg/m² (43.7–68.2). Mean specimen weight was 22.2 kg (0.4–60). Mean follow-up time was 31 months (5–64). Three patients had recurrent lymphedema, and two underwent a second procedure to remove additional tissue. All patients had improvement in quality of life.

Conclusions: MLL is a rare condition that most commonly affects the extremities, but can also affect the scrotum. MLL is associated with morbid obesity, and one theory of its causation is that a massive abdominal pannus obstructs the lymphatic flow. Patients are often advised on weight loss to alleviate the obstruction. Although this may help prevent further progression, it will not help with the lesion itself, and surgical resection is the treatment of choice. There have been several case reports of surgical resection of MLL in the literature, but our series is unique due to the massive size. Several of our patients had recurrent lymphedema, and two required skin grafting on repeat resection; this was consistent with previous reports. Our series demonstrates that surgical resection of MLL of scrotum is not only feasible, but can be met with excellent outcomes, even in cases of extraordinary proportions.

UP521

Perioperative and Long-Term Postoperative Success Rates of Anderson-Hynes Robot-Assisted Pyeloplasty (RAP): A Single Center Experience

Traumann M¹, Kluth L¹, Schmid M¹, Meyer C¹, Schwaiger B¹, Rosenbaum C¹, Schriefer P¹, Fisch M¹, Ahyai S¹, Seiler D², Dahlem R¹, Haese A³, Chun F¹

¹University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ²Kantonsspital Aarau, Aarau, Switzerland; ³Martini-Clinic Hamburg, Hamburg, Germany

Introduction and Objectives: To investigate perioperative and long-term postoperative success rates of Anderson-Hynes robot-assisted pyeloplasty (RAP) at a single center.

Materials and Methods: We retrospectively reviewed our RAP experience of 61 patients performed by two surgeons between 2004 and 2013 regarding operating time, length of hospital stay, perioperative complication, and success. Overall success was measured on necessary redo pyeloplasty. We also identified patients with temporary stent placement due to symptomatic hydronephrosis or with further obstruction in diuretic renography.

Results: Median age, operating time, and

follow-up was 33 years, 195 minutes and 64 months. No conversion to open procedure was necessary. The success rate was 98% (n=60) with one patient undergoing open redo pyeloplasty due to a recurrent stenosis. Temporary stent placement was reported in 3 patients due to pyelonephritis and dilatation.

Conclusion: Satisfying long-term success rates including low complication rates of RAP can be reported in this study. RAP presents a safe and standardised procedure for symptomatic ureteropelvic junction obstruction.

UP522

Inpatient Complications after Urethroplasty for Urethral Stricture from a Nationally Representative Sample, 2000-2010

Breyer B, Blaschko S, Zaid U, Grimes B, McCulloch C, McAninch J
UCSF, San Francisco, USA

Introduction and Objectives: Urethroplasty is considered a safe surgical procedure. The literature regarding perioperative urethroplasty complications is limited with most coming from single institution studies focused on long-term surgical outcomes. Our objective was to determine the perioperative morbidity and mortality of urethroplasty using a large national database.

Materials and Methods: The National Inpatient Sample from years 2000-2010 was queried for patients with urethroplasty-associated CPT codes. CPT and ICD-9 codes were reviewed to ensure the validity of the assembled cohort. We analyzed patient demographic, comorbidity and hospital characteristics. We used a previously validated comorbidity index to determine the relationship between comorbid disease and the presence of a complication. We used survey commands in SAS to accommodate the complex sample survey and survey weights. All values below are national estimates.

Results: During the study period, 13700 men underwent urethroplasty. Among this cohort, hypertension (25.2%) was the most common comorbid disease, followed by diabetes (9.4%), chronic pulmonary disease (6.9%), obesity (6.7%), depression (3.1%), and renal failure (2.2%). Complications during the urethroplasty hospitalization only occurred in 6.6% of men with adverse outcomes related to the surgical site or wound being the most common (5.2%), followed by cardiovascular (0.7%), respiratory (0.6%), gastrointestinal (0.4%), neurologic (0.3%), and musculoskeletal complications (0.1%). Nine people died during their urethroplasty hospitalization (0.07%). At discharge, 93% of men went home, 4.6% went with additional home care and 2.1% required transfer to another facility for on-going care. Older patients, African-Americans and those with increased comorbid disease were more likely to have a complication during

UP522, Table 1.

| Characteristic | Category | No. of patients | % of patients | % of patients with a complication | P* |
|------------------------------------|-----------|-----------------|---------------|-----------------------------------|--------|
| Age | 18-45 | 6757 | 49.3 | 3.9 | <.0001 |
| | 45-65 | 5083 | 37.1 | 8.3 | |
| | 65+ | 1860 | 13.6 | 11.6 | |
| Race | White | 7411 | 70.3 | 5.8 | 0.0134 |
| | Black | 1546 | 14.6 | 9.5 | |
| | Other | 1590 | 15.1 | 8.4 | |
| Comorbidity index | 0 | 8096 | 59.1 | 4.8 | <.0001 |
| | 1 | 3378 | 24.7 | 8.6 | |
| | 2 | 1640 | 12.0 | 8.1 | |
| | 3 or more | 586 | 4.3 | 15.1 | |
| Hospital size | Small | 591 | 4.4 | 9.4 | 0.2857 |
| | Medium | 1816 | 13.4 | 6.8 | |
| | Large | 11161 | 82.3 | 6.5 | |
| Hospital urethroplasty volume/year | 1:1 | 3120 | 22.8 | 7.8 | 0.1716 |
| | 2-9 | 4546 | 33.2 | 5.5 | |
| | 10+ | 6034 | 44.0 | 6.7 | |
| *Chi-square | | | | | |

the hospitalization. Hospital size and hospital urethroplasty volume were not associated with having a complication or not.

Conclusions: Urethroplasty patients have low peri-operative morbidity and mortality. Patients who are older, African-American or have more comorbid disease are at greater risk for complications. This data can be used by clinicians to counsel their patients regarding peri-operative risk of urethroplasty.

UP523

A TURNS Study: Intralesional Injection of Mitomycin C at the Time of Transurethral Incision of Bladder Neck Contracture May Offer Limited Benefit

Redshaw J¹, Craig J¹, Aberger M², Alsikafi N³, McClung C⁴, Smith T⁵, Erickson B⁶, Broghammer J², Voelzke B⁷, Brant W¹, Myers J¹

¹University of Utah, Salt Lake City, USA;

²University of Kansas, Kansas City, USA; ³Loyola University Chicago, Maywood, USA; ⁴The Ohio State University, Columbus, USA; ⁵Baylor,

Houston, USA; ⁶University of Iowa, Iowa City,

USA; ⁷University of Washington, Seattle, USA

Introduction and Objectives: Transurethral incision of the bladder neck (TUIBN) is usually successful for treatment of bladder neck contracture (BNCX) with success rates of greater than 80% reported. In some patients, however, BNCX recurs rapidly and is difficult to resolve. Injection of Mitomycin C (MMC) at the time of TUIBN has been suggested to increase

efficacy. Our aim was to evaluate the efficacy of MMC injection for BNCX.

Materials and Methods: Data on all consecutive patients undergoing TUIBN with MMC from 2010-2014 were retrospectively reviewed from participating centers in the Trauma and Urologic Reconstructive Network of Surgeons (TURNS). All patients with at least 3 months of cystoscopic follow-up or recurrence of BNCX prior to 3 months were eligible for inclusion.

Results: A total of 66 patients underwent TUIBN with MMC and 55 meeting eligibility criteria were included. Mean age was 64 years (SD 7.6). Forty two (76%) had failed at least one previous TUIBN without MMC and 26 (47%) had failed ≥ 2 . Techniques for TUIBN included, cold knife incision (n=30), Collins knife incision with electrocautery (n=16), and transurethral resection of the scarred tissue (n=9). A total of 58% (32/55) of patients had resolution of their BNCX after one incision with MMC at a median follow-up of 9.2 months (IQR 11.7). Recurrence occurred in 23 patients at a median of 3.7 months (IQR 4.2) – 15 underwent a repeat TUIBN with MMC and 60% (9/15) were free from another recurrence at a median 8.6 months (IQR 8.8) for an overall success rate of 74.5% (41/55). There was no association with dose of MMC injected (p=0.63), number of prior TUIBN (p=0.27), previous radiotherapy (p=0.76) and treatment failure. Three (5%) patients experienced serious

adverse events including: osteitis pubis requiring cystectomy, extensive necrosis of bladder floor, and prolonged bladder pain.

Conclusion: The efficacy of intralesional injection of MMC at the time of TUIBN is similar to success rates reported for deep lateral incision alone and use of MMC was associated with a 5% rate of serious adverse events. Prospective controlled studies are needed to determine the efficacy of MMC injection at the time of TUIBN prior to its widespread adoption.

UP524

Iatrogenic Injury to the Ureter in Gynecology-Obstetrics

Khouni H¹, Dridi M², Ghorbel J², Maaroufi J², Khiari R², Ghazzi S², Ben Rais N²

¹Internal Forces Security Hospital, La Marsa, Tunisia; ²Military Hospital, Tunis, Tunisia

Introduction and Objectives: Iatrogenic injury to the ureter often complicates gynecological obstetric interventions that can engage the renal functional prognosis and can even be life-threatening to the patient.

Materials and Methods: This is a retrospective descriptive study on 58 patients treated for urethral injuries complicating obstetric or gynecological surgery.

Results: Surgery responsible for urethral injury was most often a hysterectomy. Four urethral lesions were diagnosed intraoperatively. Diagnosis was made after more than a month in 45% of cases. Involuntary urine leakage and low back pain were the most frequent symptoms. CT urography is the gold standard in diagnosis. Endoscopic treatment was attempted in 11 patients with good results in 4 cases. Surgical treatment was required in 47 patients. Ureterovesical reimplantation according to the Politano-Leadbetter or Lich Gregoir techniques are increasingly performed with a success rate of respectively 79% and 84%.

Conclusion: Lesions of the ureter caused by gynecological and obstetric surgery are rare. Early diagnosis, the better intraoperative, ensures a good functional outcome. Variety of remedial and endourological techniques often allow kidney preservation, knowing that the best treatment is prevention.

UP525

Robot-Assisted Laparoscopic Vesicovaginal Fistula Repair in the Porcine Model

Kim H¹, Kim J¹, Chang Y¹, Kim H¹, Kim H², Rha K³, Kim J³

¹Dept. of Urology, Konyang University College of Medicine, Daejeon, South Korea; ²Dept. of Urology, Dankook University College of Medicine, Cheonan, South Korea; ³Dept. of Urology and Urological Science Institute, South Korea

Introduction and Objectives: Vesicovaginal fistula (VVF) is a debilitating condition for women in personal and social conditions.

Classical VVF repairs are the transvaginal and transabdominal approaches. Recently, minimal invasive extraperitoneal transvesicoscopic vesicovaginal fistula repair has been reported. But, extraperitoneal transvesicoscopic vesicovaginal fistula repair has been limited because of the narrow working space, longer operation time and technical skills. The use of robot-assisted laparoscopic (RAL) procedures may overcome this limitation and allow more short operation time. The purpose of the study is to define the techniques and the possibility of robot-assisted laparoscopic repair of VVF in an animal model.

Materials and Methods: Two Yorkshire swine (approximately 30 kg) underwent RAL VVF repair. Under general anesthesia, the animals were positioned supine for trocar placement. After the abdomen was insufflated with CO₂ to 10 mm Hg of pressure, a 12-mm trocar was then introduced through the radially expanding sheath and into the abdomen to serve as the camera port. Urethral Foley catheter was inserted into the bladder and urine was drained and gas was infused. Under direct visualization, another 12-mm trocar was then introduced into the bladder. Two 8-mm trocars were placed into the lateral side of bladder under transvesicoscopic view. Artificial vesicovaginal fistula was made in the supratrigonal area. Gas leak was checked through the vagina. VVF repair with performed such as open VVF repair methods in layer by layer.

Results: Mean operation time was 108 minutes. One animal VVF repair was not established. Persistent gas leak through the bladder into the peritoneum prevent pneumovesicum. Because of porcine bladder was weakly attached retroperitoneal area. The equipment disturbance was not occurred in one case operation. And short operation time, easy tissue manipulation and suturing technique was possible.

Conclusions: The results of this study suggest that extraperitoneal RAL procedures for repair VVF may be a minimal invasive, less morbid and effective modality. Shorter operation time and the easy suturing technique was remarkable merit of extraperitoneal RAL procedures. Impossibilities of the peritoneal flap placement must be overcome in the future.

UP526

Transplanting Pediatric Deceased-Donor Kidneys into Adult Recipients: An Iranian Experience

Mahdavi-Zafarghandi R¹, Shakiba B¹, Heidari K², Kalani-Moghaddam F³

¹Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran;

²Epidemiology School of Public Health, Tehran University of Medical Sciences, Tehran, Iran;

³Dept. of Pediatrics, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: This study sought to evaluate graft outcome of kidneys from deceased-donor pediatric donors in adult recipients, and compare it with outcomes of kidney transplants from adult donors.

Materials and Methods: This historical cohort study involved 2 groups. Group 1 included 23 first kidney adult recipients who received their first renal transplant from pediatric deceased-donor donors. Group 2 consisted of 33 first renal transplant adult recipients with kidneys coming from adult deceased-donors. The Kaplan-Meier method was used to generate graft survival and patient survival curves. The log-rank test was done to compare differences between survival outcomes.

Results: Graft survival rates at 1 and 5 years were 96% and 85% in Group 1, and 91% and 85% in Group 2. No significant difference existed in graft survival rates between the groups. Patient survival rates at 1 and 5 years in Group 1 were 94% and 94% compared with 91% and 91% for Group 2. No significant difference existed in graft survival rates between the groups.

Conclusions: This study demonstrates that with our experience, improvement in surgical technique and immunosuppressive therapy, pediatric deceased-donor kidneys may be considered as an alternate option for adult recipients. Renal transplants from pediatric donors into adult recipients are associated with good graft and patient survival outcomes.

UP527

The Long-Term Outcomes of the Change of Renal Functions in Living Kidney Donors: 33-Years' Experience in a Single Center

Kim B, Jung W, Ha J, Park C, Kim C
Keimyung University, Daegu, South Korea

Introduction and Objectives: Living kidney donation is the general source of kidney graft in Korea. This study investigated postoperative renal function among kidney donors after nephrectomy.

Materials and Methods: Between 1981 and 2013, 752 cases of living donor nephrectomy in our hospital were practiced. Post operative renal functions were recorded in 442 (58.9%) cases. Their estimating glomerular filtration rate (eGFR) of post operative 1 day, 1 month, 1 year, 10 years and 20 years were calculated by MDRD-GFR method.

Results: The mean age of donors was 39.9 ± 11.6 years old. Mean follow-up duration was 44.9 ± 68.1 months (0-393). The number of men was 222 (50.2%) and the number of related-donors was 309 (69.9%). A Laparoscopic operation was performed in 61 cases (13.8%). The mean eGFR of preoperative, postoperative 1 day, 1 month, 1 year, 10 years and 20 years were 92.57, 67.39, 61.73, 66.47, 67.34, and 71.30 mL/min/1.73m², respectively.

The eGFR of postoperative 1st month was the lowest level. But eGFR improved subsequently (P<0.001). A total of 51.9% of donors had stage 3 chronic kidney disease (CKD) at postoperative 1 month. But the rate of stage 3 CKD was gradually decreased in 1 year, 10 year and 20 year (33.7, 30.6 and 30.4%, respectively) (P<0.001). Two donors (0.45%) developed stage 5 CKD at postoperative 8 years and 16 years. In multivariate analysis, young age at donation (p=0.003) and laparoscopic operation (p=0.001) were associated with the low risk of stage 3 CKD, at postoperative 1 month. But, in postoperative 1 year, 10 years and 20 years, only the age of donors was a factor associated with stage 3 CKD.

Conclusion: After live donor kidney transplantation, the eGFR of the first month was the lowest but it subsequently improved during the 20 years. Age at donation was a strong determinant of post operative renal function.

UP528

Renal Transplantation in HTLV-1 Recipients: A Single Centre Study

Mahdavi Zafarghandi R, Naghibi M, Nazemian F, Tavakkoli M, Ghoreifi A

Dept. of Urology and Renal Transplant, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Renal transplant recipients are susceptible to viral infections because of their immunocompromised background. HTLV-1 is a retrovirus that leads to adult T-cell leukemia/lymphoma or myelopathies. Great Khorasan in northeast Iran is reported as being an endemic region for HTLV-1, with a prevalence of 1.97. So according the high prevalence of this infection in our region and few reports of such cases, we reviewed the results of our experience in these patients.

Materials and Methods: This historical cohort study was conducted in Imam Reza Hospital between May 2002 and September 2012. Fourteen patients with HTLV-1 infection who underwent renal transplantation (Group A) were compared with 14 identical non-infected patients (Group B). Also immunosuppressive drugs were the same in both groups. Patient characteristics and medical history was recorded and the outcome of renal transplantation has been followed carefully.

Results: The two groups were identical in sex and age. Among mean follow-up of 4.3 years (range: 1 to 12) there was only one rejection in Group A and also one in Group B. In other patients the mean creatinine levels didn't show any significant difference 1, 3 and 5 years postoperatively. Also the rate of post operative infections was similar in the two groups. One patient in Group A developed urinary incontinence and gait disturbance 10 years after transplant which was approved to be due to

HTLV-1 infection.

Conclusion: Although HTLV-1 myelopathy may be likely developed after renal transplantations, HTLV-1 positive patients can undergo renal transplant with confidence of acceptable prognosis and minimal complications.

UP529

Surgical Complications of Renal Transplantation and Management in 2100 Recipients

Mahdavi-Zafarghandi R, Tavakkoli M, Taghavi R, Mahdavi-Zafarghandi M

Dept. of Urology, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Intra or postoperative surgical complications of renal transplantation (RTX) is a serious problem and can lead to graft dysfunction or loss and even patient loss. We have studied retrospectively the demographic of intra and post transplant surgical complications as vascular, urological complication for 23 years (1900 – 2013).

Materials and Methods: Records of all recipients were reviewed and retrospective data was analysed as: intra and post transplant haemorrhage, vascular event (thrombosis, torsion, kinking) and urological complications (ureterovesical junction leak, ureteral stricture) and symptomatic Lymphocele. Finally, the results of procedures for management of these complications were reported.

Results: Out of 2100 RTX, 1580 were performed from living and 520 from diseased donors. Intraoperative haemorrhage needing blood transfusion occurred in 36 cases. Twenty cases had bleeding after operation: 12 from soft tissue and 8 from anastomosis site, in one case because of deep infection and sever bleeding the graft was removed. Vascular event like arterial and venous thrombosis, torsion and kinking occurred in 29 cases (1.2%) and the grafts were saved by immediate exploration about 70%. Urologic complication occurred in 42 cases (2%), 13 with distal end ureteral necrosis which were managed by reimplantation. Ureteral stricture occurred in 29 cases (16 short and 13 extensive), short stricture managed by endourological procedures but we reconstructed ureter by ureteropyeloplasty, Ipsilateral pyelopyeloplasty, contralateral pyelopyeloplasty, for extensive ureteral stricture. In all cases graft were saved. Symptomatic lymphocele occurred in 32 cases that in 20 cases were managed by open surgery and in last 10 cases by laparoscopic procedure.

Conclusion: Early diagnosis and early exploration for vascular accident can save some grafts. Endourological intervention is the first choice for short ureteral stricture but for extensive strictures open ureteral reconstruction is recommended. Laparoscopic is an alternative procedure to induce peritoneal window for management of symptomatic lymphocele.

UP530

Can the “One Suture-One Knot” Technique in Vascular Anastomosis in Kidney Transplant with Long-Term Follow-Up by Color Doppler Cause Vascular Stenosis?

Feizzadeh K. B¹, Nekooei S², Zolfagharzadeh A²

¹Dept. of Urology, Endoscopic and Minimally Invasive Surgery Research Center, Kidney Transplantation Complications Research Center, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ²Dept. of Radiology, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Studying the long-term results of vascular anastomosis technique by “one suture-one knot” method in kidney transplantation by using the color Doppler ultrasound.

Materials and Methods: In this cross-sectional study, all patients who underwent kidney transplants by “one suture-one knot” technique were designated during October 2011 through October 2012 at Ghaem Medical Hospital, Mashhad, Iran. Patients who were operated by the mentioned technique were included and patients who had died because of non-surgical complications of renal transplantation were excluded. Written informed consents were obtained from patients before entering the study. Maximum blood flow velocity in main renal and iliac arteries, artery resistance and acceleration time in interlobar arteries of transplanted kidneys were measured by the use of color Doppler ultrasound in the first week, the 1st, 3rd and the 12th months after the transplantation. SPSS 15 software was used for data analysis by T-tests and chi-square statistical analysis.

Results: Out of the 52 patients, 24 were male and 28 were female. Their average age was 31.6 years. Twenty cases received their kidneys from a donor while 32 received it from a deceased donor. During the 12-month follow-up evaluation with color Doppler ultrasound, no arterial thrombosis or stenosis was observed in any case. Kidney vein thrombosis was only seen in one case.

Conclusion: The “one suture-one knot” technique is a safe measure in kidney transplant and the results showed no difference between recipients of kidneys from donors and deceased donors.

UP531

A Comparative Study on the Effect of Coctel Serum and Normal Salin on Urinary Output and Plasma Creatinine following on Cadaveric Kidney Transplantation

Yarmohamadi A, Asadpoor A, Bazmi J
Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Renal transplantation is an ideal treatment for patients with end stage renal disease. It was demonstrated that survival and function of cadaveric renal transplantation is moderately lower than live-donor renal transplantation so any procedure, in order to improve transplanted kidney function like to increase diuresis could help patients with transplantation. We started a study to investigate the effects of new Coctel Serum on urine output and the changes of plasma creatinine level in patients with cadaveric kidney transplantation.

Materials and Methods: In an analytic retrospective cohort study, from 2008 to 2012, 50 patients with cadaveric renal transplantation were enrolled in this study. Patient candidates for transplantation divided randomly into two groups. In Group 1, Serum Coctel was injected during the first 2 hours after transplantation and Group 2 received just Normal Salin as the conventional intervention. Serum Coctel in our study were included of Sodium bicarbonate (7.5%, 50cc), lasix (1mg/kg), Manitol (20%, 1cc/kg) in Normal Salin or Half Salin according to patients plasma sodium. Urine volume within 4 and 24 postoperative hours and plasma creatinine level changes in first 24 hours were checked and compared with Group 2. Data in this study was analyzed by SPSS v.20 and Statistics v.10.

Results: This study showed a significant difference between 2 groups in contrast to the Urine output in the first 4 hours (P-value=0.02) and 24 hours (P-value=0.002). To determine plasma creatinine level results showed that before operation in 2 groups were no significant different, and were similar (P-value=0.2), but after operation creatinine mean level were lower significantly in the first postoperative day transplantation in Group 1 (P-value=0.03).

Conclusion: Comparing the Normal Salin with Coctel in normal Salin the later can cause a more effective diuresis in cadaveric transplanted kidney, so we could consider. The Coctel is very effective transplanted graft particularly in cadaveric donors.

UP532

Effects of High Dose Anti-Thymocyte Globulin (ATG-F) Therapy on Complete Blood Cell, Rate of CMV Infection and Graft Rejection in Kidney Transplant Recipients

Pourmand G, Dehghani S, Mehraei A, Gooran S, Rahmati M, Pourhoseini M, Heidari F, Beladi L, Alizadeh F, Alatab S, Gholizadeh S
Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: There are controversial reports about the role of anti-thymocyte globulin (ATG-F) induction therapy in early and late functionality and performance of kidney transplant. In this study, we aimed to

evaluate the two groups of kidney transplants (ATG-F recipient and ATG-F non-recipient) and assess the effects of ATG-F on the functionality and graft rejection in these two groups.

Materials and Methods: In this study, 265 patients who had kidney transplants and received ATG-F (9 mg/kg, single dose) during period 2010-2012 were enrolled as case group. Our control group was selected retrospectively, and consisted of patients who did not receive ATG-F and had complete follow-up for 3 months. Complete blood count and CMV screening had been performed monthly for 3 months. The data of the two groups were compared for occurrence of CMV infection, thrombocytopenia, leukopenia and frequency of early and delayed graft rejection.

Results: No significant differences in age and sex were found between the two groups ($P>0.05$). Mean hemoglobin level was 9.8 ± 2 g/dL in the case group and 9.5 ± 1.9 g/dL in the control group ($P>0.05$). Mean white blood cell count was $10\pm 4.5 \times 10^3/\mu\text{L}$ in ATG-F group and $9.9\pm 4.7 \times 10^3/\mu\text{L}$ in the control group ($P>0.05$). Mean platelet count was $220.1\pm 67.7 \times 10^3/\mu\text{L}$ and $214.1\pm 97.4 \times 10^3/\mu\text{L}$ in the case and control groups respectively ($P>0.05$). In ATG-F group, 12.5% had early graft failure and 16.7% had delayed graft failure. In contrast 14.2% and 7.6% of individuals of the control group suffered from early and delayed graft failure, respectively ($P<0.001$). Frequency of CMV infection in the ATG-F group was significantly lower than that of the control group ($P<0.001$). Although only ATG-F received patients had ganciclovir prophylaxis.

Conclusions: Considering the lower rate of early and late rejection in ATG-F received patients, it is recommended to use high dose ATG-F as induction therapy in our center. This form of induction therapy is a part of standard care in many transplantation centers in order to reduce the risk of early and late graft failure.

UP533

Serum Trace Elements before and 3 Months after Renal Transplantation in Kidney Recipients: An Iranian Study

Nikoobakht M, Pourmand G, Allameh F, Dialameh H, Sharifi A

Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: Metabolic disorders in End Stage Renal Disease (ESRD) patients may result in changes with serum concentrations of trace elements. Efficient immune system function is related to appropriate intake of trace elements. Decreased serum levels of trace elements which are regularly seen in long-term hemodialysed patients suppress immune system by affecting innate, T cell mediated and adaptive antibody responses, which is leading

to alter host immune response. The aim of this study was to examine changes in serum levels of these elements, and assess the correlation between post-transplantation kidney function and serum levels of these elements.

Materials and Methods: ESRD patients due to different etiologies with history of long-term hemodialysis were divided into two groups. The first group had undergone kidney transplantation ($n=54$) and the second group had not ($n=69$). Blood levels of Lithium, Magnesium, Iron, Zinc and Copper were measured 24h before transplantation and three months after transplantation in the first group. These trace elements were measured in the second group during three months period as well. The patients' serum levels of creatinine were assessed at the same intervals as an indicator of graft function and serum levels of these trace elements compared with the normal range in the healthy population.

Results: A total of 54 patients, 18 men (33%) and 36 women (67%) with a mean age of 47.67 ± 14.33 years had undergone kidney transplantation during April 2010 and April 2011. While serum Iron ($p<0.001$) and Copper ($p<0.001$) levels significantly increased after transplantation, there was a statistically reduction in Magnesium ($p<0.001$) levels after the surgery. No significant differences were noted in Zinc ($p=0.17$) and Lithium ($p=0.080$) levels in comparison to the control group who had shown no changes during the three months period. A significant relationship was noted between serum levels of Magnesium ($p=0.015$) and Zinc ($p=0.025$) and creatinine within three months after transplantation.

Conclusion: The present study showed that transplantation can alter serum levels of trace elements in ESRD patients which can affect the immune system and results of kidney transplantation. Long-term hemodialysed patients have decreased serum levels of trace elements which can be somehow improved by renal transplantation. Future studies are needed to confirm if the levels reach that of healthy individuals after renal transplantation.

UP534

Right Laparoscopic Donor Nephrectomy and Inverted Kidney Transplantation: A Long-Term Follow-Up

Simforoosh N, Tabibi A, Soltani M, Zare S, Yahyazadeh S, Abadpour B, Samzadeh M
Shahid Labbafinejad Medical Center, Urology and Nephrology Research Center, Shahid Beheshti University of Medical Sciences (SBMU), Tehran, Iran

Introduction and Objectives: To present long term follow-up of inverted kidney transplantation, an alternative easy and safe technique to overcome the difficulties associated with a short right renal vein anastomosis after laparoscopic

donor nephrectomy (LDN).

Materials and Methods: Seventy nine laparoscopic donor nephrectomies and intentionally inverted renal transplantations were performed between 2004 and 2009. Renal artery was ligated by Hem-o-lok and titanium clips and the vein was closed with two Hem-o-lok clips resulting to a very short renal vein. By inverting the harvested kidney in the ipsilateral pelvic side of recipient, short renal vein is placed posterior and adjacent to the external iliac vein; this made an easy and safe short renal vein anastomosis possible.

Results: All donor nephrectomies were completed laparoscopically and no conversion to open surgery was required. The mean warm and cold ischemic time were 7.3 ($2.5 - 17$) and 37.5 ($17 - 105$) minutes, respectively. Delay graft function (DGF) was seen only in 6 cases (7.6%) while after follow-up of 60 months, grafts function were excellent with mean serum creatinine level of 1.46 mg/dl and graft survival of 93.7%. No vascular thrombosis and acute rejection were observed. Four patients died in 5 year follow-up; three cases had functional transplanted kidneys and one cases experienced graft rejection one month prior to his death.

Conclusion: Inverted kidney transplantation is an easy, safe method to overcome the problems associated with short right renal vein anastomosis after LDN. This simple modification might obviate the need for short renal vein elongation.

UP535

Comparison of Postoperative Estimated Glomerular Filtration Rate between Kidney Donor and Radical Nephrectomy Patients and Risk Factors of Post-Operative CKD: A Multi-Centered Retrospective Matched Case-Control Study

Lee S¹, Lee D¹, Min G¹, Cho S², Kang S², Kim S³, Yoo D⁴, Park J⁴, Park S⁵, Jeon S¹

¹Dept. of Urology, Kyung Hee University School of Medicine, Seoul, South Korea; ²Dept. of Urology, Korea University College of Medicine, Seoul, South Korea; ³Dept. of Urology, Myongji Hospital, Goyang, South Korea; ⁴Dept. of Urology, Eulji University College of Medicine, Daejeon, South Korea; ⁵Dept. of Urology, Hanyang University College of Medicine, Seoul, South Korea

Introduction and Objectives: Post-operative renal function between living kidney donors and renal cell carcinoma (RCC) patients were compared to evaluate trends in recovery and discover relevant factors of renal failure.

Materials and Methods: Patients who had radical (RN) or donor nephrectomy (DN) from 4 different institutions between 2003 and 2012 were reviewed. Propensity score matching was performed and 79 patients were selected for each group. Estimate glomerular filtration rate (eGFR) was calculated using Modification of Diet in Renal Disease (MDRD) formula

pre-operatively and post-operative at 1, 3, 6, 12, 24, and 36 months. Mean eGFR was compared and difference between pre-operative values and each precedent date was calculated. Multivariate logistic regression was used to determine independent factors of decrease in eGFR of less than 60 mL/min/1.73m².

Results: General linear model showed that there was no difference in monthly eGFR follow-ups. The DN group showed a trend of better eGFR recovery at 24 months and 36 months compared with the RN group but this was not statistically significant. Multivariate logistic regression showed that RCC (Odd ratio [OR]=4.605, 95% Confidence interval [CI]=1.626-13.040, $p=0.004$), a baseline eGFR lower than 110 (OR=4.477, 95% CI=1.360-14.742, $p=0.014$) and age older than 40 (OR=0.046, 95% CI=0.006-0.362, $p=0.000$) were predictive factors for renal function decrease.

Conclusion: According to our results, precise evaluation of renal function is mandatory before surgery. Patient older than 40 or whose baseline eGFR is 110 mL/min/1.73m² or less should be followed-up strictly after nephrectomy. Moreover, partial nephrectomy is recommended in the management of clinical T1 stage patient as RCC is an independent risk factor of CKD after nephrectomy.

UP536

Diuretic Stimuli at Kidney Reperfusion: A Comparative Analysis of Furosemide and Mannitol on Delayed Graft Function and Long-Term Graft Function and Survival

Castelo D, Tavares-Silva E, Dinis P, Bastos C, Figueiredo A, Mota A

Dept. of Urology and Renal Transplantation, CHUC, Coimbra, Portugal

Introduction and Objectives: Intraoperative diuretics given at the time of graft reperfusion have been used to reduce the incidence of delayed graft function (DGF). Small retrospective studies have produced conflicting results in this context, but no previous study has directly compared furosemide, mannitol or a combination of both administered at graft reperfusion regarding DGF and long-term graft function and survival.

Materials and Methods: A retrospective review of 812 consecutive transplants performed at a single academic institution between 2009 and June 2013 was performed. This sample included 29 grafts from living donors and 503 from expanded criteria donors. Grafts were classified according to diuretic given at reperfusion: furosemide 100mg, $n=220$ (F); mannitol 20% 250mL, $n=163$ (M); and 40-60mg furosemide plus 125mL mannitol 20%, $n=176$ (FM). One-hundred and three patients were excluded because this information could not be retrieved. The diuretic used was a random choice at the

time of surgery, not guided by any other variable. These groups were compared regarding incidence of DGF and primary non function, serum creatinine at 1, 3, 6, 12 and 24 months and graft survival.

Results: The incidence of DGF was similar between the groups: 20.0% (F), 12.9% (M) and 18.2% (FM), as was the proportion of non-functioning grafts: 3.5% (F), 3.6% (M) and 3.3% (FM). Donor and recipient characteristics and intraoperative variables were comparable between the groups. Serum creatinine at 1, 3, 6, 12 and 24 months were all comparable between the 3 groups. Graft survival was also comparable: 50.9 (F), 45.7 (M) and 48.5 (FM) months. In the subset of expanded criteria donors, the results were similar to the whole cohort. In the group of stroke as donor cause of death (352 grafts), there was a lower incidence of DGF when mannitol was used (18.3% vs. 27.8%, $p=0.025$).

Conclusion: The administration of mannitol at graft reperfusion seems to reduce the incidence of delayed graft function in a subset of donors at higher risk for DGF. Long-term graft function and survival are not influenced by this variable.

UP537

Long-Term Changes in Renal Function after Living Donor Nephrectomy: Predictive Factors for Chronic Kidney Disease

Song S, Park H, Hong B, Han K

Asan Medical Center, Seoul, South Korea

Introduction and Objectives: Few studies have evaluated the long-term effects of kidney donation on donors. Here, we report the long-term changes in donor renal function and the donor risk factors associated with developing chronic kidney disease after donation.

Materials and Methods: Data were obtained retrospectively from the records of living kidney donors undergoing kidney donation for renal transplantation between 2004 and 2009. Estimated glomerular filtration rates (eGFRs) were calculated preoperatively and postoperatively using the modification of diet in renal disease (MDRD) formula. Furthermore, we evaluated the predictors of postoperative prevalence of stage 3 chronic kidney disease (CKD) (as defined by the Kidney Disease Outcomes and Quality Initiative [K/DOQI]).

Results: A total of 452 donors were identified, of which 248 (54.7%) were men. The median age was 40 (range, 17-65) years. The last postoperative MDRD eGFR was evaluated at a median follow-up duration of 18.7 (interquartile range, 6.4-36.8) months after donation, and the mean decrease in MDRD eGFR was 16.7 ± 11.2 mL/min per 1.73 m². Stage 3 CKD developed in 126 (27.9%) donors after donation. Independent factors predicting new-onset CKD were age of more than 40 years (OR: 4.91; 95% CI, 2.87-8.42; $p < 0.001$)

and preoperative MDRD eGFR of less than 90 mL/min per 1.73 m² (OR: 6.45; 95% CI, 3.78-11.02; $p < 0.001$).

Conclusions: Stage 3 CKD is commonly observed after living kidney donation, particularly in older donors. Moreover, preoperative eGFR is an independent predictor of CKD after donation.

UP538

Retroperitoneal Laparoscopic Living-Donor Nephrectomy and Recipient Outcome

Wang J¹, Tian Y², Huan S¹, Lee L², Chiu A³

¹Dept. of Urology, Chi Mei Medical Center, Tainan, Taiwan; ²Dept. of Transplant Surgery, Chi Mei Medical Center, Tainan, Taiwan;

³School of Medicine, National Yang Ming University, Taipei, Taiwan

Introduction and Objectives: Living-donor nephrectomy is performed via a standard flank approach during open surgery in contrast to laparoscopy where kidneys are procured transperitoneally. Being more familiar with retroperitoneal laparoscopic for the surgery of the upper urinary tract, we investigated the feasibility of living donor nephrectomy by this approach.

Materials and Methods: We perform laparoscopic retroperitoneal nephrectomy in 8 living donors. The patients were placed in flank position. The retroperitoneal space was developed with blunt finger dissection, through a 2-cm mini-lumbotomy above anterior superior iliac crest in the posterior auxiliary line. After primary access to the renal artery and vein, these were dissected to their junctions with great vessels, before freeing the kidney of its perinephric attachments. The kidney was delivered manually, through Gibson's incision or Pfannenstiel incision.

Results: The average duration of surgery was 193 ± 48 (120-240) min; warm ischemia time less than 5 min (4.9 ± 2.0). Most of the donors present grade II postoperative morbidity according to modified Clavien grading system. All 8 kidneys harvested laparoscopically had immediate function with urine production after revascularization and mean post operation day 1 serum creatinine level was 4.9 ± 2.6 mg/dL. Most patients' serum creatinine levels returned to normal within 1 week. Two patients had Clavien grade I and two patients with grade 3 complications.

Conclusion: Our data suggest that retroperitoneal laparoscopic donor nephrectomy may represent a reasonable option in centers in which more extensive experience has been accumulated with retroperitoneal than with transperitoneal laparoscopy for the surgery of the upper urinary tract.

UP539

Renal Transplantation: Is the Second Transplant Different from the First?

Tavares da Silva E, Marques V, Castelo D, Simões P, Ferreira C, Figueiredo A, Mota A
Coimbra's Hospital and University Centre, Coimbra, Portugal

Introduction and Objectives: Despite improvements in post-transplant care, chronic allograft nephropathy is still responsible for the loss of a large proportion of kidney grafts and the return to dialysis. We know that transplantation is the treatment of choice for end-stage renal disease but the retransplanted patient can present different clinical and immunological challenges.

This study aims to know if there are differences in graft survival between first transplant receivers and retransplanted patients of the same donor.

Materials and Methods: Retrospective study of patients transplanted at the Urology and Renal Transplantation Department of Coimbra's Central and University Hospital from January 1985 until May 2012. Receptor pairs from the same donor were selected, in which one was a first transplant and the other a retransplant.

Results: Our population included 152 patients, 76 (50%) were first transplantations, 73 (48.0%) second transplantations and 3 (2.0%) third ones. The two groups differed in age. The first time recipients were significantly older ($p=0.004$). The first transplant patients were significantly heavier than the retransplanted ($p=0.01$). Panel reactive antibodies (PRA) were significantly higher in retransplanted patients ($p=0.002$). There were no differences in Human leukocyte antigen (HLA) compatibility. Graft survival was not influenced by the use of induction therapy. Induction therapy was performed significantly more times in the retransplanted group (65 vs. 36, $p=0.001$), most frequently Thymoglobulin (58 patients). The number of acute rejections was similar in both groups. Graft survival in both groups did not differ statistically (12.9 years for first transplants vs. 14.4 years for retransplanted). The occurrence of acute rejection was the only factor associated with worse graft survival outcome ($p=0.01$, HR 2.58).

Conclusion: The retransplanted patients were younger in the studied population. PRA was significantly higher in retransplanted patients. Induction therapy was performed in this group more frequently. Despite this, the number of acute rejections and graft survival did not differ between the two groups. Retransplantation is a valid therapeutic option for patients who lose the function of their first graft.

UP540

The Treatment of Urinary Leakage Complicating Kidney Transplantation

Bosio A¹, Dalmasso E¹, Lasaponara F¹,

Alessandria E¹, Lillaz B¹, Pasquale G¹, Sedigh O¹, Gontero P¹, Biancone L², Righi D³, Segoloni G², Fontana D¹, Frea B¹

¹Dept. of Urology, Città della Salute e della Scienza, Molinette Hospital, Turin, Italy;

²Dept. of Nephrology, Città della Salute e della Scienza, Molinette Hospital, Turin, Italy; ³Dept. of Radiology, Città della Salute e della Scienza, Molinette Hospital, Turin, Italy

Introduction and Objectives: Urinary leakage occurs in 2-8% of kidney transplantations. Anastomosis dehiscence and ureteral necrosis owing to vascular insufficiency are the main causes. The objective of our study was to evaluate the outcome of different treatments for urinary leakage complicating kidney transplantation.

Materials and Methods: We made a retrospective analysis on the 1412 renal transplants performed in our Transplant Center from 1999 to 2010. The ureterovesical anastomosis was performed using the Lich-Gregoire technique and protected by a 4.8 Fr double J stent. We analysed the results of different treatments considering the time of onset, site and degree of leakage. Fisher test was used for statistical analysis.

Results: Thirty one leakages were diagnosed: 55% occurred in the first 15 postoperative days ("early onset") and 45% afterwards ("late onset"). A nephrostomy was placed in 87% of cases, not in really mild cases. Contrast study showed 55% severe, 22.5% moderate, 22.5% mild leakages. A double J stent was placed or kept in 20 cases (65%): in 16 cases it was antegradely placed (≥ 7 Fr) and in 4 minimal leaks the double J stent placed during renal transplantation was kept, together with a bladder catheter. Fifteen patients (48%) underwent surgery: 2 ureteral reimplantations and 13 reconstructions using native upper urinary tract (8 uretero-ureteral anastomosis, 5 pyelo-ureteral). Long-term overall success rate of the non-surgical treatment was 60%. Stent placement or maintenance in

mild leakage succeeded in all cases. Success rates were significantly higher ($p = 0.01$) in case of mild leakages (100%) compared to moderate and severe cases (38%) but were not influenced by time of onset and site of leakage. Surgery was long-term successful in 87% of cases. Success was 100% in case of reconstruction with native urinary tract. Overall surgical success rate was not significantly higher compared to percutaneous treatment ($p = 0.13$).

Conclusion: Non-surgical treatment demonstrated excellent results on mild leakages complicating kidney transplantation and should be considered at first. Its outcome does not depend on leakage site and time of onset. Surgery is indicated in case of massive leakage and after failure of conservative treatment. Reconstructions using native urinary tract provide excellent results.

UP542

Prospective Measurement of Urinary Microalbumin in Living Donor Nephrectomy: Towards Understanding the Renal Functional Recovery Period

Yoon Y¹, Lee K², Choi K², Yang S², Han W²

¹Yonsei University Health System, Seoul, South Korea; ²Dept. of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea

Introduction and Objectives: To determine the clinical implications of perioperative urinary microalbumin excretion in relation to recovery of renal function after living donor nephrectomy.

Materials and Methods: Between Aug 2010 and Jan 2013, 259 patients undergoing live donor nephrectomy were enrolled. Donor urinary albumin-to-creatinine ratio (UACR) was measured perioperatively, and changes in perioperative UACR were investigated. The relationships between perioperative UACR and

UP542, Figure 1.

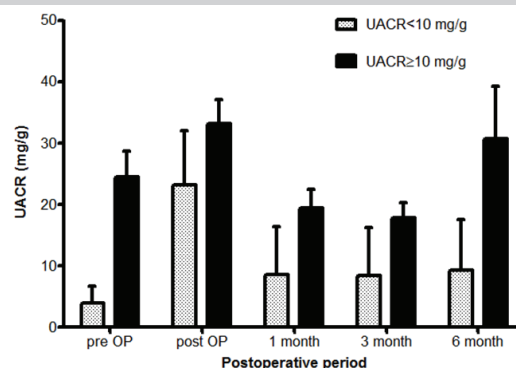


Figure 1. Postoperative UACR and eGFR changes. Donors with preoperative UACR ≥ 10 mg/g showed higher postoperative UACR throughout the observation period than donors with preoperative UACR <10 mg/g. All differences between the two groups were statistically significant ($p < 0.001$).

UP.542, Figure 2.

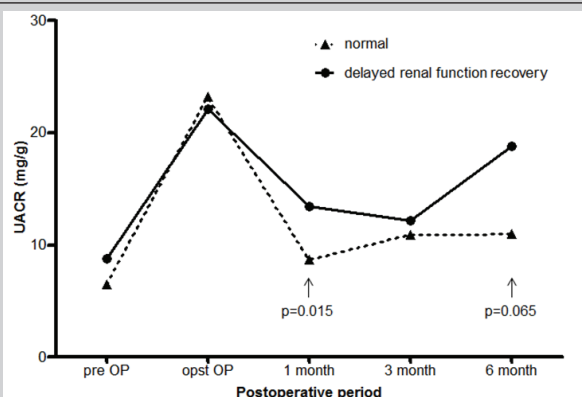


Figure 2. UACR of the normal group and the delayed renal function recovery group. The delayed renal function recovery group showed a higher UACR level than the other group (13.4 vs. 8.7 mg/g, $p=0.015$) at 1 month after donor nephrectomy.

recovery of renal function and implantation biopsy histology were also analyzed.

Results: Mean preoperative UACR was 7.1 ± 12.7 mg/g. UACR was elevated in the immediate post-operative period (24.7 ± 18.9 mg/g; $p < 0.001$) and stabilized after 1 month (10.3 ± 10.7 mg/g; $p < 0.001$). Preoperative UACR was not associated with perioperative GFR during a follow-up period of 6 months, but was associated with histological abnormalities. Donors with higher levels of UACR before donation, even in the normal range, consistently showed elevated postoperative UACR (Figure 1). At 1 month after donor nephrectomy, the delayed renal function recovery group ($GFR < 60$ mL/min/1.73 m² at 6 months) still showed a higher UACR level than the other group (Figure 2). One-month post-operative UACR was associated with delayed recovery of renal function (OR: 1.05 for each 0.1 mg/g increase; $p = 0.021$). An ROC curve analysis showed that age, preoperative eGFR, and 1-month postoperative UACR were highly predictive of delayed recovery of renal function ($AUC = 0.881$; $p < 0.001$).

Conclusions: Donors with higher preoperative UACR levels require close observation because they have a greater possibility of developing MA after donation. Higher UACR levels were also associated with delayed recovery of renal function and histological abnormalities.

UP.543

Urogenital Malignancies Complicating Kidney Transplantation

El-Bahnasawy M, Alharbi A, Zakaria M
Prince Salman Hospital, Tabuk, Saudi Arabia

Introduction and Objectives: Patients on renal replacement therapy have an increased cancer risk. Tumor development after Renal Transplantation (RT) is believed in some cancers to depend on the duration and type of immunosuppression or association with viral infections,

while other cancers such as kidney or urinary tract cancers are linked to end stage kidney disease. Malignancies are diagnosed at younger age and at higher stages compared to patients without transplantation, and are associated with worse outcomes. Due to the increase in donor age and graft survival a significant increase in the number of genitourinary post-transplant malignancies after RT can be expected in the future.

Materials and Methods: Herein we present 3 cases of genitourinary malignancies complicating kidney transplant recipients. The three cases are a case of stage I left testicular seminoma, a case of PT3 invasive urothelial bladder carcinoma and another case of T1N0M0 renal cell carcinoma in right native kidney. Mean duration for post-transplant development of malignancies was 7 years.

Results: The testicular tumor was managed successfully by high inguinal orchidectomy with post-operative single course of carboplatinum. Bladder tumor was managed by radical cystectomy and orthotopic neobladder. The case of RCC was managed by radical nephrectomy. Immunosuppressive regimens were modified in three cases however the case of urothelial bladder malignancy developed distant metastases 3 years post-operatively.

Conclusion: These cases highlight the necessity of long life follow-up of these patients putting a high index of malignancy suspicion.

UP.544

Epidemiological and Medicolegal Aspects of Renal Transplantation in Sfax: About 340 Cases

Bouassida M, Hadj Slimen M, Touaiti T, Smaoui W, Fourati M, Mseddi M, Rbai N, Mhiri M
CHU Habib Bourguiba, Sfax, Tunisia

Introduction and Objectives: Transplantation is the most interesting treatment of terminal

renal failure and it's more operated since the first time in Tunisia in 1986. The aim of our study is to analyze the epidemiological aspects of donors and acceptors, evaluate the graft evolution and expose the medico-legal, ethical, and religious aspects to improve the transplantation activity in Tunisia.

Materials and Methods: Our study is retrospective covering the period from April 1994 to December 2013 concerned 340 cases. We studied the specification of donors, acceptors, the operative technique and the evolution of grafts.

Results: The acceptor average age was 32.9 year (8-58). The sex ratio was 1.35. The patients were on hemodialysis since an average period of 39 months. The grafts were from living donors in 83%, 78.3% left graft. The arterial anastomosis was termino-lateral in external or primitive iliac artery for all cases. The venous anastomosis was termino-lateral in the external iliac venous in 98.3%. Urinary anastomosis was performed with the Lich-Gregoire technique in 89.7% AND lead-better-Politanos technique in 10.3%. Thirty four patients died after an average of 34 months. The graft was operational until the dying moment in 14 cases (42.4%). Among 306 survivors, 46 (16.8%) were back to hemodialysis after an average period of 31 months. The survey of grafts was 75% after 5 years and 60% after 10 years.

Conclusion: The success of renal transplantation still being the outcome of a multidisciplinary collaboration for a good selection of patients to guarantee best survey chance.

UP.545

Nephron-Sharing Surgery: An Update of the Newcastle Transplant Unit Restored Kidney Program

Patterson I, Stein A, Spratt P
Newcastle Transplant Unit, Newcastle, Australia

Introduction and Objectives: Kidneys with small renal tumours or other urologic problems are a novel and useful source for renal transplantation. A number of programs in Australia and around the world have described the successful outcomes of transplantation of kidneys that have undergone partial nephrectomy for small renal tumours measuring < 3.5 cm in size. The Newcastle Transplant Unit has administered an extended-criteria restored kidney program for tumours up to 5 cm in size since 2008.

Materials and Methods: Urologists and renal physicians in the Hunter New England Local Health District and surrounding areas were encouraged to refer patients with small renal masses (SRM) measuring < 5 cm to the Newcastle Transplant Unit when considering a radical nephrectomy. Between 2008 and 2014, there have been 26 kidneys referred for nephrectomy and potential transplantation. Given the larger tumour size accepted in our program compared

to other programs, there is a small but real risk of increased rates of tumour recurrence or metastasis in the recipient.

Results: There have been 26 kidneys referred for consideration for transplantation after back-table partial nephrectomy or reconstruction. Twenty five kidneys have had small renal masses and one kidney had sustained a complicated ureteric injury. The average size of the tumour in the renal mass kidneys was 39mm. There were six kidneys discarded for transplantation purposes after nephrectomy. The average age of the donors was 57.8 years. The average age of recipient was 65 years and the average follow-up of these patients has been 19.2 months (range 2 weeks to 58 months). All grafts have survived except one, and the average creatinine in the recipient population is 191.8mmol/L. There have been no confirmed episodes of recurrence or metastatic disease in the recipient population.

Conclusion: Although nephron-sparing surgery is considered the gold standard in the management of small renal masses, there are times when radical nephrectomy is deemed appropriate. We have found that in a highly-selective group of these patients, the opportunity for nephron-sharing surgery provides a real and safe alternative source of transplant kidneys.

UP546

Anti-HLA Antibody Reduced Graft Survival in Living-Related Transplants: Over 20-Years Experience

Mizutani K

Dept. of Urology, Nagoya University Graduate School of Medicine, Nagoya, Japan

Introduction and Objectives: Recently, many studies showed effects of HAL antibody to kidney transplants. However, longer behavior and impact of HLA antibody were not clear. In this study, the role of HLA antibodies in allograft rejection was examined utilizing a unique resource of sera collected annually and stored over a 23-year period from patients with rejected or retained grafts.

Materials and Methods: We selected 60 transplant patients who received kidney from 1984 to 1999, and whose serum samples were available annually. During 23 years, 32 patients were rejected their grafts and 28 had functioning grafts. Their samples were tested for HLA Class I and Class II antibodies by flow cytometry, ELISA, or cytotoxicity. For analyzing specific HLA antibodies, we used Labscreen Single antigen (One Lambda).

Results: HLA antibodies were found in 81% of patients who rejected grafts, compared to 50% with functioning transplants ($p=0.0001$). In addition, even if living-related transplants had good kidney function for a longer time, some living-related patients gradually developed HLA antibodies with stable functioning grafts.

Conclusions: In conclusion, patients who rejected transplants had HLA antibodies more frequently than those with functioning grafts. These antibodies found in the peripheral circulation, and their association with failure is consistent in long period.

UP547

Phytohemagglutinin-Induced IL2 mRNA as a Useful Marker of Kidney Transplants

Mizutani K

Dept. of Urology, Nagoya University Graduate School of Medicine, Nagoya, Japan

Introduction and Objectives: Recently, as we have treated kidney transplant patients with multiple drug therapy, comprehensive and correct evaluation of immunosuppressed patients cannot be implemented by blood level monitoring alone. In addition, the efficacy and toxicity of immunosuppressive drugs vary among patients. Currently, no diagnostic test is available to personalize the use of each drug. Even if levels of calcineurin inhibitors were suitable, some transplants had rejection episodes. Therefore, new approaches are needed for the net immunosuppressive state of the kidney transplants. We introduced a new concept of ex vivo gene expression analysis, where drug action was stimulated under physiological condition. This new model was applied to kidney transplants in our institutes. In this study, we report new development such personalized immuno-monitorings and show one case with cellular rejection.

Materials and Methods: Patients with kidney transplantation were recruited after the protocol was approved by the institutional review board. Blood was drawn periodically before and after transplantation and tacrolimus or cyclosporine treatment (CI). Whole blood was stimulated at 37°C for 2 hours with either solvent or phytohemagglutinin (PHA) in triplicate, then IL2 and other cytokine mRNA was quantified by the method we developed (Clin Chem 52:634, 2006).

Results: PHA-induced mRNA expression was compared before and after CI treatment in pre-transplant patients. PHA-induced interleukin-2 (IL2) mRNA expression was significantly ($p<0.05$) reduced after CI treatments. During their follow-up, one living-related transplant had cellular rejection and failed transplanted kidney. In this case, PHA-induced IL-2 mRNA increased before rejection episode although the expression of other cytokines mRNA had not changed. After IL2-mRNA expression increased, the levels of serum creatinine increased gradually and her transplanted kidney was rejected finally. Other patients without rejection did not have any change of IL-2 mRNA.

Conclusion: The quantification of PHA-induced IL2 mRNA will be a useful tool for the development of personalized medicine diagnostics for monitoring immunosuppressive status

and find rejections before increased serum Cr.

UP548

Therapeutic Effects of Intracavernosal Plaque Excision in Peyronie's Disease: A None Grafting or Tunical Excising Procedure

Ahmadnia H¹, Kamalati A², Younesi

Rostami M³, Imani M⁴, Asadpour A¹, Hariri M¹

¹Dept. of Urology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran;

²Dept. of Urology, Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran;

³Dept. of Urology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran;

⁴Dept. of Urology, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Current surgical treatments in Peyronie's disease accompanied by complications such as penile shortening, loss of sensation, erectile dysfunction and recurrence of disease. Treatment of Peyronie's disease by the intracavernosal plaque excision is a new surgical technique. Here, we represent our results of the use of this technique for the surgical correction of Peyronie's disease in our series.

Materials and Methods: Intracavernosal plaque excision was performed in 35 males referred to our clinic between 2009 and 2012. The diagnosis of peyronie's disease was based on a palpable penile plaque and acquired penile curvature. The basic criteria for selecting the patients for operation: a peyronie's plaque that doesn't response to current medical treatments, duration of the disease not shorter than 12 months, a stable state of the disease of at least 6 months, localized lesions, impaired sexual intercourse, and curving during erection that is not due to penile fracture. The operation consists of incising the tunica albuginea parallel to the plaque and through this incision, the plaque was removed from the inside surface without excision or replacing the underlying tunica albuginea by grafts. All patients were evaluated before and periodically within 12 months after the surgery with measurement of penile length, curvature angle in the rigidity phase, and sexual satisfaction.

Results: The mean age of patients was 51.4±5.3 years (range 42-59). The angle of penile curvature was 25°-45° (mean 35°). Thirty patients (86%) obtained a near complete straightening of penis. All patients restored their previous penile length without any disorder of sensation within the glans penis and expressed improvement of sexual activity.

Conclusion: Intracavernosal plaque excision is a simple, easy, and minimal invasive method that does not result in penile shortening, loss of sensation or erectile dysfunction. In properly selected patients, this technique can lead to acceptable elimination of penile curvature and sexual satisfaction.

UP549

The Effect of 5-Alpha Reductase Inhibitor on Structure and Function of Major Pelvic Ganglion in Old Rats

Zhang M^{1,2,3}, Wang X¹, Zhang C¹, Qing L¹, Xia L¹, Gao P³, Shen Z¹

¹Dept. of Urology, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China; ²Dept. of Urology, Ruijin Hospital North, Shanghai Jiao Tong University School of Medicine, Shanghai, China; ³Dept. of Hypertension, Ruijin Hospital, Shanghai Institute of Hypertension, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Introduction and Objectives: Many clinical studies reported 5-alpha reductase inhibitor-related erectile dysfunction; we have previously reported that finasteride treatment for 4 weeks reduced the weight of the corpus cavernosum in adult rats, but to date, the effect of 5-alpha reductase inhibitor on peripheral erection-related nervous system was unknown. The present study was to investigate the effects of long-term treatment of finasteride on structure and function of peripheral erection-related nervous system in old rats.

Materials and Methods: Old, male Sprague-Dawley rats were divided into two groups (20/group): (i) control; (ii) oral finasteride treatment. Sixteen weeks later, erectile function was measured by the ratio of intracavernosal pressure and mean arterial blood pressure upon electrical stimulation of the cavernous nerve. Serum T and dihydrotestosterone (DHT) were measured using liquid chromatography tandem mass spectrometry. The ultrastructure of major pelvic ganglion (MPG) was observed using transmission electron microscopy (TEM). The nNOS-positive nerve fibre of MPG was detected by immunohistochemistry (IHC).

Results: The serum T and DHT levels of Group A and B were 0.524 ± 0.096 and 0.527 ± 0.102 ng/ml ($p > 0.05$), 51.10 ± 6.72 and 25.78 ± 5.08 pg/ml ($p < 0.001$), respectively. The mean ratio of ICP/MAP in Group A and B after electrical stimulation of the cavernous nerve were 0.72 ± 0.07 and 0.48 ± 0.07 ($p < 0.001$). In Group B rats, a significant reduction of erectile response was found during the second and third electrical stimulation of the cavernous nerve. The nNOS-positive nerve fibre in MPG of Group B was lower than that in Group A. Severe reduction of the number of myelinated and unmyelinated nerve fibres could be seen in MPG of Group B, as well as the dilatation of mitochondrion. The degree of demyelination was much more severe in Group B.

Conclusions: Long-term administration of 5-alpha reductase inhibitor may significantly attenuates the erectile response to electric stimulation of cavernous nerve in old rats. The mechanisms are partially due to the degenerative effect of 5-alpha reductase inhibitor on MPG in old

rats. The present study may partially explain the reasons of persistent sexual side effects associated with 5-alpha reductase inhibitors.

UP550

The Different Patterns of TRPC Subtypes Expression in the Disease-Related ED

Lee S¹, Choo S², Kim J¹, Sung H¹, Chae M¹, Kang S¹, Park J^{3,4}

¹Dept. of Urology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea; ²Dept. of Urology, Ajou University Hospital, Suwon, South Korea; ³Dept. of Urology, Medical School, and Institute for Medical Sciences, Chonbuk National University, Jeonju, South Korea; ⁴Research Institute and Clinical Trial Center of Medical Device of Chonbuk National University Hospital, Jeonju, South Korea

Introduction and Objectives: Transient receptor potential canonical (TRPC) proteins have been known as Ca^{2+} -permeable cation channels, which play important roles in the regulation of smooth muscle function. Recently, emerging evidence suggests a significant contribution of TRPC proteins to pathophysiological mechanism of various diseases. However, to date, there are few data regarding the potential role of TRPC channel in the pathogenesis of ED. The aim of current study was to evaluate the potential pathophysiological relevance of TRPC in the ED development caused by various diseases complications.

Materials and Methods: Real-time PCR and Western blots performed to evaluate the expression level of TRPC mRNA and protein in the each penile tissue of diabetes mellitus and hypercholesterolemia rats. To examine the cellular localization and changes in the expression levels of TRPC channels, immunohistochemical (IHC) experiments were also performed.

Results: The relative expression levels of TRPC3, TRPC4 and TRPC6 mRNA were significantly increased in the diabetic rats than normal controls. The TRPC4 mRNA was showed dramatic changes than any other subtype of TRPC (TRPC3: 1.4 ± 0.15 fold, TRPC4: 1.8 ± 0.29 fold, TRPC6: 1.5 ± 0.2 fold, $n=8$, $p < 0.05$ vs. normal control). Also the protein level of TRPC4 was three times higher than in normal controls. However in the hypercholesterolemia rats, the mRNA expression of TRPC6 was significantly up-regulated than normal controls (TRPC4: 1.4 ± 0.29 fold, TRPC6: 2.2 ± 0.27 fold * $p < 0.05$, $n=8$). TRPC6 protein showed the same trends as the mRNA. IHC study could confirm the expression of TRPC1, TRPC4, and TRPC6 in the penile tissue of every experimental animal group. Consistently, the TRPC4 and TRPC6 expressed much higher in the each diabetes and hypercholesterolemia rats in IHC. The increasing of these proteins was mostly located in

smooth muscle cells.

Conclusions: This study showed that the TRPC subtype expression was changed in disease dependently. The alteration of TRPC channel expression or/and function might contributed to the pathogenesis of ED and could be a target for drug development for disease-specific ED.

UP551

Comparisons of Apomorphine-Induced Erection and Spontaneous Overnight Erection in Rats by Telemetric Assessment of Intracavernosal Pressure

Lee S¹, Han D¹, Kim J¹, Sung H¹, Chae M¹, Kang S¹, Park J^{2,3}

¹Dept. of Urology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea; ²Dept. of Urology, Medical School, and Institute for Medical Sciences, Chonbuk National University, Jeonju, South Korea; ³Research Institute and Clinical Trial Center of Medical Device of Chonbuk National University Hospital, Jeonju, South Korea

Introduction and Objectives: Although there are several methods for assessing erectile function in rats, the standard methods for telemetric monitoring have not been established. Theoretically, assessment of spontaneous overnight erection (SOE) seems to be the most physiologic method but it needs long measuring time and additional efforts. Apomorphine-induced erection (AIE) is one available and simple method; however, the correlation with SOE has not been assessed. We compared erection profiles of AIE and SOE in normal and disease rat models by telemetric assessment of intracavernosal pressure (ICP).

Materials and Methods: Seven-week-old male Sprague-Dawley rats were assigned to normal control, diabetes mellitus (DM) and hypercholesterolemia (HC) group. After 19 weeks a telemetric pressure sensor (C40; Data Sciences, St. Paul, MN) was surgically implanted in the corpus cavernosum. One week later, ICP was recorded in freely moving animals after intraperitoneal apomorphine (100 µg/kg) injection (AIE) or during overnight (SOE). Sexual events were visually identified and recorded. Only the pressure increases that occurred during sexual behavior were analyzed.

Results: Two-way ANOVA revealed no significant effect of the measuring methods on the mean AUC ($F_{1,43} = 2.756$, $P\text{-value} = 0.104$), but a significant effect of different disease models on mean AUC (two-way ANOVA: $F_{2,43} = 12.929$, $P\text{-value} < 0.001$) was observed. The mean AUC of normal control rats was significantly higher than that of DM and HC rats (Bonferroni post hoc test: $P < 0.001$ and $P = 0.001$, respectively).

Conclusion: ICP measurements using a telemetric device showed no significant difference

in AUC between AIE and SOE. AIE is easy and requires less time than SOE measurements. Therefore, AIE could be a useful method to evaluate ICP in rats.

UP553

Association of Anthropometric Measures and Men's Health Problems in Middle Aged Men: A Cross Sectional Study in Korea

Cho I, Kim Y, Kim S, Kim S, Min S
National Police Hospital, Seoul, South Korea

Introduction and Objectives: There have been no reports on the best anthropometric index for assessing the link between obesity and men's health. We evaluate the relationship of two anthropometric measurement variables, body mass index (BMI), waist-to-hip ratio (WHR) and symptom scores of five widely used questionnaires for detecting men's health problems. And we determine the predictive abilities of two obesity indices and other clinical parameters for screening lower urinary tract symptom (LUTS) and sexual dysfunction of middle aged men.

Materials and Methods: Between March and September 2013, 1910 police officers aged 40-59 years who had participated in a health examination were included. Exclusion criteria included presence of pyuria, history of lower urinary tract disorder influencing urination. All men underwent a detailed clinical evaluation using the validated International Prostate Symptom Score (IPSS), National Institutes of Health-Chronic Prostatitis Symptom Index (NIH-CPSI), Androgen Deficiency in Aging Males (ADAM), International Index of Erectile Function-5 (IIEF-5), and Premature Ejaculation Diagnostic Tool (PEDT) questionnaires. The BMI and WHR measurements were determined. Serum PSA, urinalysis, testosterone, estimated glomerular filtration rate (eGFR), evaluation of metabolic syndrome (MetS), and transrectal ultrasonography were also performed.

Results: Data from 1899 men were analyzed. The median age was 53.0 years, and median values of BMI and WHR were 24.8 kg/m², 0.93, respectively. Obese (BMI ≥25.0 kg/m²) men showed a low testosterone level, low eGFR, high total prostate volume (TPV), and high prevalence of MetS (p<0.001, p=0.042, p<0.001, and p<0.001, respectively). Abdominal obese (WHR ≥0.93) men had a low testosterone level, high TPV, low IIEF-5, high prevalence of MetS (p=0.010, p<0.001, p<0.001, p<0.001, respectively). Using logistic regression analysis, age and TPV were independent predictors for moderate to severe LUTS in the multivariate analysis (p=0.001, OR 1.034, 95% CI 1.014-1.056, p=0.010, OR 1.019, 95% CI 1.004-1.033, respectively). MetS was only significant predictive factor for moderate to severe CPSI score (p=0.022, OR 0.747, 95% CI=0.581-0.959). Age and MetS were

independent predictive factors for moderate to severe IIEF-5 scores in the multivariate analysis (p<0.001, OR 1.121, 95% CI 1.087-1.156, p=0.036, OR 1.323, 95% CI 1.018-1.720, respectively). WHR had a statistically significant value of predicting moderate to severe IIEF-5 score in the univariate analysis (p=0.016, OR 47.683, 95% CI 2.080-1093.027).

Conclusion: Our data showed that TPV is significant predictor for LUTS and central obesity by WHR has a predictive ability for erectile dysfunction. Handling of correctable factors such as WHR may be considered one of the preventive modalities against the development of men's health concerns.

UP554

Perception and Differentiation of ED and PE in Asian Population: The Result of SCOPE (Sexual Concerns on Premature Ejaculations)

Loh J¹, Lam M², Ong T³, Abdul Razack A³, Lee E⁴

¹University of Southampton, Southampton, UK;

²University of Leicester, Leicester, UK; ³University Malaya Medical Centre, Kuala Lumpur, Malaysia; ⁴Gleneagles Hospital, Kuala Lumpur, Malaysia

Introduction and Objectives: Premature ejaculation (PE) is a common medical condition affecting men and their sexual partners, affecting up to 30% of general population. The objective of this study is to identify the level of knowledge on PE and differentiation of the condition from erectile dysfunction (ED) in a socio-economically diverse nation in Asia.

Materials and Methods: Subjects from both urological and non-urological clinics are recruited to complete non-validated part questionnaires on their perception towards ED and PE and the treatment modalities. The age, gender, income and economic backgrounds were identified.

Results: A total of 1541 subjects (792 men and 749 women) completed the study, of which 66% believed PE is more common than ED and 65% considered having poor knowledge of the condition. Forty percent of the respondents agreed PE and ED are difficult to be differentiated and 30% considered ED and PE are essentially the same and a third thought both conditions should be treated with the same therapy. A significant number of the respondents (82%) considered ED to be a medical condition, while 77% perceived PE to be psychological. Half of the subjects considered PE curable.

Conclusion: Sexual dysfunction is a taboo in many Asia and associated with knowledge deficiency in sexual health. Although many understand PE is a more prevalent sexual dysfunction compared to ED, our study revealed difficulties in the differentiations of the two conditions. Such confusion may lead to unsatisfactory treatment seeking behavior and failure

of therapeutic interventions. Sub-analysis of the population studied may ensure targeted patient educations.

UP555

Sexual Function

Škorić V¹, Urbanovski B¹, Kunić G¹, Slavnić N¹, Nale D^{2,3}

¹Dept. of Urology, General Hospital, Sombor, Serbia; ²Clinical Center of Serbia, Clinic of Urology, Belgrade, Serbia; ³Faculty of Medicine, University of Belgrade, Belgrade, Serbia

Introduction and Objectives: Sexual dysfunction in women is a problem that is not well studied or discussed. The objective of our cross-sectional study was to evaluate the influence of urinary incontinence on sexual function in premenopausal and postmenopausal women with various types of urinary incontinence using validated and reliable Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12).

Materials and Methods: A total of 43 consecutive, sexually active incontinent women, who came to our urology department, were, under the assumption that they are suitable, enrolled in this study and 27 healthy, sexually active, continent volunteers served as control group. All patients underwent clinical evaluation including medical history, physical examination, urine analysis, urine culture and cystoscopy with stress test. Incontinent women were given prospective 3-day voiding diary. To evaluate frequency and severity of incontinence it was used the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF). We assessed sexual functions in patients with various types of urinary incontinence and compared the data with results of healthy continent subjects by means of short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12). All subjects were asked to complete PISQ-12 questionnaire. The mean values were compared between the groups.

Results: The average age of subjects with stress urinary incontinence (SUI), urgency urinary incontinence (UUI), mixed urinary incontinence (MUI) and controls were: 50.47±9.11, 58.73±10.31, 58.71±12.69 and 49.56±7.10, respectively. Age was significantly lower in patients with SUI and control group (p=0.003). Total score of PISQ-12 of women without and with various type of incontinence were: controls: 10.00±5.69; SUI:15.38±6.98; UUI:15.00±5.15; MUI:18.58±8.68. Total score of PISQ-12 was significantly higher in incontinent women (p=0.002). Among the incontinence types, no significant difference was determined in total score of PISQ-12. Frequency of incontinence episodes and severity of incontinence obtained from ICIQ-SF questionnaire significantly influenced on total score of PISQ-12 (p=0.036 and p=0.005, respectively).

Conclusions: Urinary incontinence

significantly reduces sexual functions in sexually active women. Frequency and severity of incontinence has significant influence on sexual functions among women with urinary incontinence.

UP556

Recovery of Sexual Dysfunctions in Aged Male Patients by the

Regulation of Blood Glucose Level:

First Diagnosed by the Urologist

Yildiz M¹, Demirtas A², Demirtas S³, Akkorlu S¹

¹Ozel Lokman Hekim Hospitals, Etlik, Ankara, Turkey; ²Gülhane Military Academy School of Nursing, Etlik, Ankara, Turkey; ³Gülhane Military Academy School of Medicine, Etlik, Ankara, Turkey

Introduction and Objectives: Diabetes is a main disease that affects metabolism and sexual function. Vascular effect of diabetes on penile erection and testicular function will improve libido decrease and impotence gradually. This study aims to show that controlled blood glucose levels can help male patients, with sexual dysfunctions, unaware of being a DM patient, to recover these dysfunctions.

Materials and Methods: We conducted a retrospective study on patients applied to with erectile dysfunction symptoms and diagnosed as diabetes mellitus for the first time by the urologist. Between Jan 2008 and Feb 2014, fourteen male patients were diagnosed as diabetes mellitus. Blood tests and sexual performance questionnaire scale were performed. The questionnaire is "The International Index of Erectile Function (IIEF)" which is a validated scale for Turkish. After the blood glucose levels were regulated by internal medicine doctor, the scale was re-performed. The data is analyzed with T-Test using SPSS ver. 15 software.

Results: Mean age is 45 (24-56) years old. Retests were made averagely 50 days after the first diabetes diagnose. Retest scores of the 14 patients showed increased questionnaire scores. The differences between the scores before and after the treatment are compared and found statistically significant. ($t=0.788$ $p=0.001$).

Conclusion: Sexual dysfunctions can be an indicator for the diagnosis of DM in middle aged and elderly male patients. These dysfunctions can decrease by the regulation of blood glucose level.

UP558

Effects on Serum Sex Hormone Levels by the Treatments for Localized Prostate Cancer: Three-Dimensional Conformal Radiotherapy versus Radical Prostatectomy

Kitahara S, Kobayashi S, Yano M, Kusuda J, Komatsu A
Tama-Nambu Chiiki (Tama Southern Regional) Hospital, Tokyo, Japan

Introduction and Objectives: Three-dimensional conformal radiotherapy (3D-CRT) can focus precisely on the target tumor and avoid healthy surrounding tissue or organ, which results in fewer long-term adverse effects, comparing with conventional radiation therapy. 3D-CRT as well as radical prostatectomy is currently one of standard therapies for localized prostate cancer (cT1c-2N0M0). We investigate effects of the two therapies on serum sex hormone levels to assess testicular damage by the treatments for localized prostate cancer.

Materials and Methods: From January 2011 to February 2014, serum levels of testosterone, LH and FSH were measured before and after each therapy in patients with localized prostate cancer without hormonal therapy. Eight patients were treated with 3D-CRT (Group RT) and 6 were treated by radical prostatectomy (Group OP). Mean interval of hormone measurements was 12 months (range 6 to 18) in Group RT and 20 months (range 12 to 24) in OP Group. Dose of 3D CRT was 70Gy in 7 patients and 65Gy in one patient. All patients showed no recurrence of prostate cancer and underwent no additional treatment during the period.

Results: Mean age (years) of the patients before the treatment in Group RT and Group OP was 69 (range 63 to 77) and 67 (range 58 to 72), respectively. In Group RT, the treatment did not change serum testosterone level ($p=0.767$) but significantly increased both LH ($p=0.008$) and FSH ($p=0.008$) in serum level. In Group OP, the treatment did not change serum levels of testosterone ($p=0.173$), LH ($p=0.173$) and FSH ($p=0.917$).

Conclusion: These data indicate that 3D-CRT for localized prostate cancer seems to affect testicular function due to scattering as with conventional radiotherapy, and that radical prostatectomy might make no significant effects on testicular function.

UP559

Does Thulium:YAG (RevoLix®) Laser Prostatectomy for the Treatment of Benign Prostatic Hyperplasia Affect the Erectile Function?

Chung J, Kang P, Seo W, Chung J, Kim S, Park S, Park S, Kim W, Yoon J, Oh C, Kang D, Min K
Inje University, Busan, South Korea

Introduction and Objectives: We investigated the effect of Thulium:YAG (RevoLix®) laser therapy for the treatment of benign prostatic hyperplasia on the erectile function.

Materials and Methods: A total of 105 patients for whom data for a 1-year follow-up data on the IIEF-5 were available included in this 2-center, retrospective study. Erectile function was assessed by administering the International Index of Erectile Function (IIEF-5). All cases were evaluated preoperatively and at 3, 6,

and 12 months after surgery using international prostate symptom (IPSS), quality of life (QoL) score, Qmax, post-voiding residual urinary volume and IIEF-5. Patients were divided into three groups according to their IIEF-5 score (Group A, IIEF-5 \leq 7:n=37; Group B, 8 \leq IIEF-5 \leq 16:n=53; Group C, 17 \leq IIEF-5:n=15). The changes in IIEF-5 over time were analyzed using a linear mixed model.

Results: Mean patient age was 69.6 \pm 6.0, 64.5 \pm 5.3 and 63.6 \pm 7.1 years in each group, respectively ($p=0.04$). There was no significant difference among the 3 groups regarding total operation time. The preoperative prostate size was 55.1, 56.1, and 48.6 cc for groups A, B and C. There was a significant prostate size reduction in all groups. The prostate size estimated postoperatively were 25.2, 26.9 and 23.2 cc respectively. There was a significant improvement in Qmax, PVR, IPSS and QoL scores among the 3 groups during 12-months follow-up period. IIEF-5 score at 3-months follow-up point after surgery was lower than preoperative score in the Group B and C (Group A: 4.1 vs. 4.3, Group B: 12.6 vs. 9.5, Group C: 19.8 vs. 14.3). However, IIEF-5 score gradually increased and reached preoperative state at 12-month follow-up point (Group A: 4.5, Group B: 12.3, Group C: 19.6).

Conclusions: Thulium laser prostatectomy is an effective procedure for the treatment of BPH, whereas it did not have an effect on erectile function eventually.

UP560

Infrapubic Implantation of Penile Prosthesis: Patient and Partner Satisfaction

Meyer C, Reiss P, Ludwig T, Fisch M, Dahlem R, Soave A
University Hospital Hamburg-Eppendorf, Hamburg, Germany

Introduction and Objectives: The penoscrotal approach for the implantation of penile prosthesis is the most common but bears significant malfunctioning and discomfort during sexual intercourse due to scrotal tube positioning. We provide first evidence for the avoidance of these problems by the infrapubic approach with lineage of the tubes along the penile root.

Materials and Methods: A 23-item patient questionnaire and 5-item partner questionnaire was designed assessing satisfaction with various domains related to the prosthesis, including validated instruments like a modified EDITS. The questionnaire was sent to all patients that underwent an infrapubic IPP between 2008 and 2012 at our institution. Scores were measured with a 4-5 point rating (Likert) scale with a score \geq 2 considered satisfactory.

Results: Twenty three patients were treated by infrapubic approach and considered for

evaluation. Of those, 22 had a primary infrapubic surgery and one was revised infrapubically after initial penoscrotal implantation. Eleven (47.8%) patients responded, five patients (21.7%) denied participation, one patient had died (4.3%) and six patients (26.2%) were lost to follow-up. Partner questionnaires were not returned in two cases. Median follow-up was 1.97 years (range 0.92 – 3.5) and the average age 57 years (range 46 – 66). Overall, 9 patients (82%) were satisfied or very satisfied with the result of the implants and patient expectations were totally or largely met by the prosthesis; 91% (10) had never been bothered by the tubes and 73% (8) had never experienced pain caused by the tubes during intercourse. A total of 73% (8) and 45.5% (5) of patients were satisfied with the rigidity and length of the prosthesis, respectively. Eighteen percent (2) reported to suffer from a concorde phenomenon on a regular basis. Despite this 45.5% (5) use the prosthesis more than 10 x/month and 73% (8) use it more than 6 x/month. Eighty two percent (9) of patients would recommend the treatment to others; 73% (8) of the partners were satisfied or more than satisfied with the prosthesis as treatment for their partners ED; 64% (7) of partners felt more attractive because of the prosthesis and 91% (10) were not bothered by the tubes during intercourse.

Conclusion: The infrapubic approach for penile prosthesis implantation seems to meet the high expectations of patients and results in few adverse effects during intercourse. A wider embracement of this technique should be considered while further comparative trials are warranted.

UP562

Impact of the MITROFANOFF Continent Urinary External Diversion on Female Sexuality

Hadj Slimen M¹, Smaoui W¹, Touaiti T¹, Bouassida M¹, Mhiri M¹

¹Dept. of Urology, Habib Bourguiba Academic Medical Center, Sfax, Tunisia

Introduction and Objective: To evaluate female sexuality after performing a MITROFANOFF continent urinary external diversion. **Materials and Methods:** A total of 45 women were questioned about their sexuality after performing a MITROFANOFF continent urinary external diversion. The indication of the bypass was a neurological etiology (90%). Our study was based on a validated questionnaire "Female sexual function index." Translated in language spoken.

Results: After a mean follow up of 11 years, the average age was 34 years. Continence was achieved in 100%. Self- survey was considered easy in 93%. Patients were divided according to their marital status: 24 singles, 14 married before surgery, 2 married 9 years on average after

surgery and 5 widowed including 3 after operation. Sexuality was considered conserved among brides with total satisfaction, one of them had a pregnancy 4 years after marriage. All of patients reported wellness feeling after the disappearance of urinary incontinence with better body image vision. In contrast, impaired sexuality was felt among unmarried (70%), widowed (40%) and married before the intervention (42.85%). The field of sexuality most affected was sexual dissatisfaction. These disorders are multifactorial causes related primarily to the original neurological condition and family situation. Furthermore, constraints to the bypass charged were considered troublesome in five cases.

Conclusion: The feeling of being healed of voiding dysfunction, preserving the integrity of the body image and the presence of an understanding partner, are key factors for sexual satisfaction in patients prepared and motivated after achieving a MITROFANOFF continent urinary external diversion.

UP563

Impact of MITROFANOFF External Continent Urinary Diversion on Male Sexuality

Hadj Slimen M¹, Smaoui W¹, Touaiti T¹, Bouassida M¹, Mhiri M¹

¹Dept. of Urology, Habib Bourguiba Academic Medical Center, Sfax, Tunisia

Introduction and Objective: To evaluate the influence of MITROFANOFF external continent urinary diversion on male sexuality. **Materials and Methods:** A total of 46 men were interviewed about their sexuality after performing a MITROFANOFF external continent urinary diversion. The average age at surgery was 28.5 years (5-65yrs). The indication of the bypass was a neurological etiology (93%). This study was performed using a set of validated questionnaires, grouped according to the model representation of sexuality.

Results: After a mean follow-up of 8 years, the average age was 37.34 years now. Continence was 100%. The catheterization was considered easy in 43 cases (93%). Postoperative complications were: bladder stones (1 case) and stenosis of the stoma (3 cases). Patients were divided according to their marital status, 15 married before surgery, 7 married 6 years on average after surgery and 24 singles. Sexuality was considered conserved in Newlyweds with satisfaction (100%). These patients reported a feeling of well-being following the disappearance of urinary incontinence with their bodily integrity of images. In contrast, a relative alteration of sexuality with dissatisfaction was felt especially in singles (41%). The most affected field of sexuality was the penetration with a dissatisfaction rate of 38%. These disorders have a multifactorial cause related primarily to neurological pathology. Furthermore, constraints

to the bypass charged were found in three cases troublesome.

Conclusion: The disappearance of disorders of the lower urinary tract and the preservation of the integrity of the body image are important factor for satisfactory sexual rehabilitation in young and motivated patients after completion of MITROFANOFF external continent urinary diversion.

UP564

Bone Mass Study in Patients with Upper Urinary Tract Calcium Urolithiasis

Feizzadeh K. B¹, Yarmohamadi A², Esmaili H³, Ahmadi F³

¹Endoscopic and Minimally Invasive Surgery Research Center, Kidney Transplantation Complications Research Center, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran;

²Dept. of Urology, Ghaem Medical Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ³Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction and Objectives: Bone loss is one of the main complications seen in urolithiasis patients. One of the explanations for this finding could be the alterations in calcium metabolism leading to excessive resorption of calcium. In this study we evaluate the bone mineral density (BMD) among patients with urolithiasis.

Materials and Methods: This cross-sectional study was conducted on 85 upper urolithiasis patients referring to Ghaem Medical Hospital Mashhad IRAN. Questionnaires were prepared and demographic characteristics were documented. Metabolic studies, vertebral (L2-L4) and femoral neck BMD and stone configuration were conducted on all patients.

Results: Data analysis revealed no significant differences between male and female cases considering BMD. Menopausal women's femoral neck BMD in comparison with non-menopausal women was significantly reduced. However, there were no significant differences between these two groups in lumbar vertebral BMD. Furthermore, there was no significant statistical difference in bone density among patients with different types of renal calculi.

Conclusion: Urolithiasis plays a role in bone mass loss. This should be considered in menopausal patients specifically, therefore, low calcium diet should be prescribed more carefully in these patients.

UP565

Outcome of a Trimodal Protocol for the Treatment of Lower Pole Renal Calculi between 10 and 20mm

Laing K¹, Chan L², Lingard J¹, Phipps S¹, Thomas B¹, Keanie J¹, Tolley D¹, Cutress M¹

¹Scottish Lithotripter Centre, Western General Hospital, Edinburgh, Scotland, UK; ²Edinburgh University, Edinburgh, Scotland, UK

Introduction and Objectives: Lower pole (LP) renal calculi remain challenging to treat despite advances in shock wave lithotripsy (SWL), flexible ureteroscopy (FURS) and percutaneous nephrolithotomy (PCNL). We use a 'trimodal' protocol for the management of LP renal calculi of size 10-20mm. SWL is used first line. FURS is used second line or where SWL is contraindicated. PCNL is used third line or where SWL and/or FURS are contraindicated. The objective of this study was to assess the outcome of our trimodal approach.

Materials and Methods: We conducted a review of our prospectively maintained database and selected patients who had undergone treatment for solitary LP calculi of size 10-20mm between 2008 and 2012. Treatment modality was determined at a multidisciplinary team meeting based on our trimodal departmental protocol. SWL was carried out as an outpatient using Sonolith Vision or I-Sys lithotriptors (Technomed Medical Systems, Vaulx-en-Velin, France). Outcome was assessed by KUB X-ray, or USS for lucent stones, at 1 month following treatment. Treatment success was defined as stone free or the presence of clinically insignificant fragments (≤ 3 mm) on 1-month follow-up imaging.

Results: A total of 249 patients were eligible for inclusion in this study. Mean patient age was 53.1 (range 47-87) years with male to female ratio of 2:1. The overall treatment success rate using our protocol was 93.5%. A total of 10.1% patients underwent treatment using more than one modality. There were 203 (81.5%), 33 (13.2%) and 13 (5.2%) patients who underwent SWL, FURS and PCNL as first line treatment. The success rates for these treatments were 89.2%, 69.7% and 92.3% respectively. Of those 22 patients who failed SWL, 17 underwent FURS (success rate 77%), 5 underwent PCNL (success rate 80%).

Conclusion: Using this trimodal protocol for the management of LP calculi of size 10-20mm the vast majority of patients are managed successfully with SWL alone on an outpatient basis. The more invasive surgical options of FURS and PCNL can be reserved for more complex cases where SWL has failed or is contraindicated. When this strategy is employed only small numbers of patients undergo treatment with more than one modality. We advocate this approach for the treatment of LP calculi in centres managing large numbers of urolithiasis patients.

UP566

One Day Ureteral Stenting after Ureteroscopy: What Is the Benefit to Think Again?

Galal E, Fath El-bab T, Abdhamid A
Minia University Hospital, Minia, Egypt

Introduction and Objectives: To evaluate the value of short term use of ureteral catheter after uncomplicated ureteroscopy (URS).

Materials and Methods: Seventy four URS procedures were done at the Urology department of Minia University Hospital from January 2010 to March 2011. Stones at various levels of the lower ureter were the indication for URS using semirigid (Wolf 8Fr.) ureteroscope. Direct extraction and disintegration using a pneumatic lithotripter (Lithoclast, Richard Wolf GmbH, Knittlingen, Germany) were the methods of treatment. All cases included in the study were uncomplicated procedures and patients were equally divided into two groups (A & B). Group A was including patients without post-operative stenting and Group B including patients with one day ureteral catheter. Intra-operative assessment for success, residual stones and operative time was done. Patients were evaluated in postoperative day 0 and 1 for pain and stent related symptoms.

Results: A hundred percent of patients were totally cleared of stones with resolved preoperative hydronephrosis. Mean stone size was 7.3 mm (range, 6-16mm). The mean operative time was 58 minutes (range, 35-90 minutes). Post operative visual analogue scale (VAS) pain score was significantly higher in Group A on days 0 and 1. There was no difference in dysuria, urinary frequency and urgency between the 2 groups on postoperative day 0 and 1. Also, no significant difference in patients reported postoperative hematuria in either group. Unplanned hospital visit was done in 4 patients of Group A, 2 of them developed ureteral obstruction necessitating stenting.

Conclusion: In our experience, insertion of ureteral catheter for one day after uncomplicated URS is advisable.

UP567

N-methyl-4-Isoleucine Cyclosporine: An Inhibitor of Cyclophilin D Activation, Prevents Kidney Stone Formation by Alleviating Oxidative Stress

Yasui T¹, Niimi K¹, Okada A¹, Taguchi K¹, Hamamoto S¹, Hirose M¹, Tozawa K¹, Sasaki S¹, Hayashi Y¹, Kohri K¹, Rodgers A²

¹Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; ²University of Cape Town, Cape Town, South Africa

Introduction and Objectives: Renal tubular cell injury, a major risk factor for kidney stones disease, can be prevented by using antioxidants. Generation of reactive oxygen species (ROS) in mitochondria is closely associated with the pathogenesis of renal tubular cell injury and kidney stone disease. Previously, we demonstrated that activation of cyclophilin D in mitochondria promotes kidney stone formation through renal tubular cell injury. In this study, we evaluated the clinical application of

N-methyl-4-iso-leucine cyclosporine, a recently reported selective inhibitor of cyclophilin D activation.

Materials and Methods: Cultured renal tubular cells were exposed to calcium oxalate monohydrate crystals *in vitro* and then treated with N-methyl-4-iso-leucine cyclosporine. To observe changes in mitochondria, mitochondrial membranes were stained with tetramethylrhodamine ethyl ester perchlorate. For the *in vivo* studies, Sprague-Dawley rats were assigned to four groups: control group, ethylene glycol group (ethylene glycol was administered to induce renal calcium crystal formation), N-methyl-4-iso-leucine cyclosporine group, and ethylene glycol plus N-methyl-4-iso-leucine cyclosporine group. Renal calcium crystal formation was detected by Pizzolato staining. Oxidative stress was evaluated by analyzing superoxide dismutase activity and 8-hydroxy-deoxyguanosine levels. Mitochondria in renal tubular cells were observed by transmission electron microscopy, and apoptosis was evaluated by determining cleaved caspase-3 levels.

Results: Calcium oxalate monohydrate crystals induced depolarization of mitochondrial membrane potential *in vitro*, and this effect was abrogated by N-methyl-4-iso-leucine cyclosporine. Further, in rats, ethylene glycol administration induced renal calcium crystal formation, oxidative stress, mitochondrial collapse, and apoptosis, and treatment with N-methyl-4-iso-leucine cyclosporine significantly reduced all these effects.

Conclusion: Our approach can be developed into a new therapeutic strategy for preventing kidney stone formation. This is the first report of use of N-methyl-4-iso-leucine cyclosporine as a novel therapeutic agent that prevents renal calcium crystal formation through inhibition of cyclophilin D activation.

UP568

Results of Shock Wave Lithotripsy (SWL) Depend on the Definition of Stone Free Rate: Comparative Outcomes from Two UK University Teaching Hospitals

Burr J¹, Rai B², McClinton S², Cohen N², Nick S¹, Cook P¹, Somani B¹

¹University Hospital Southampton NHS Trust, Southampton, UK; ²Aberdeen Royal Infirmary, Aberdeen, UK

Introduction and Objectives: SWL is one of several recommended treatments for renal and ureteric stones. Fragmented stones have to be passed subsequently in the urine. The stone free rate (SFR) is variably defined, but previous studies record a relatively high success rate. We compared the results of SWL between two UK university teaching hospitals based on a variable definition of SFR.

Materials and Methods: All SWL procedures were carried out as day case procedures by a

UP568, Table 1. Stone location and size in the two hospitals

| | Hospital-1 | Hospital-2 | Total |
|--------------------------|----------------|-----------------|-----------------|
| Number of patients | 126 | 202 | 328 |
| Size of stones | 7.5mm (3-16mm) | 7.7 mm (3-17mm) | 7.6 mm (3-17mm) |
| Multiple stones | 45 (36%) | 68 (34%) | 113 (34%) |
| Upper pole | 16 (13%) | 38 (19%) | 54 (16%) |
| Inter pole | 21 (17%) | 42 (21%) | 63 (19%) |
| Lower pole | 63 (50%) | 95 (47%) | 158 (48%) |
| Renal pelvis | 9 (7%) | 10 (5%) | 19 (6%) |
| PUJ | 8 (6%) | 8 (4%) | 16 (5%) |
| Upper ureter | 9 (7%) | 6 (3%) | 16 (5%) |
| Successful fragmentation | 64 (50%) | 124 (61%) | 188 (57%) |
| Stone free | 54 (43%) | 52 (26%) | 106 (32%) |

UP568, Table 2. Definition of stone free rate (SFR) level

| Stone free rate (SFR) level | Size of stone detected | Evaluation modality | SFR |
|-----------------------------|------------------------|---------------------|--------------|
| 0 | No stones | USS, CT, XR | 0U, 0C or 0X |
| 1 | ≤ 1mm | | 1U, 1C or 1X |
| 2 | ≤ 2mm | | 2U, 2C or 2X |
| 3 | ≤ 3mm | | 3U, 3C or 3X |
| 4 | ≤ 4mm | | 4U, 4C or 4X |

mobile lithotripter. The follow-up imaging was a combination of KUB Xray or USS or non-contrast CT (in selective cases only). Following SWL treatment, the SFR was defined as ≤2mm fragments in hospital-1 (126 patients treated between March and September 2010) and no residual fragments in hospital-2 (202 patients treated between January 2012 and August 2013).

Results: The stone size was similar in both hospitals (around 7.5 mm). Stone location was comparable as shown in Table 1. Successful fragmentation was achieved in 50% and 61% in hospital-1 and -2 respectively. However the variable definition of success rate meant the results differed, the SFR being 43% in hospital-1 and 26% in hospital-2 (Table 2).

Conclusions: Although SWL achieves a relatively high stone fragmentation rate, the stone free rate is variable depending on the definition used. The stone free level (Table 2) should be used for defining the level of SFR.

UP569

Expression of Osteopontin and Fetuin-A Associated with Sex Hormones in Ethylene Glycol-Treated Rats with Calcium Oxalate Nephrolithiasis

Oh T¹, Kwak K¹, Ryu D¹, Bae Y², Choi S³
¹Samsung Changwon Hospital Sungekyunkwan University, Changwon, South Korea; ²Ulsan Jeil Hospital, Ulsan, South Korea; ³Kosin University Gospel Hospital, Busan, South Korea

Introduction and Objectives: Sex difference

in the incidence and crystalline composition of urolithiasis in humans has been well-known phenomenon. However, the effect of sex hormones on urinary stone formation remains undetermined. We investigated the association of sex hormones with expression of renal osteopontin and urine fetuin-A in ethylene glycol (EG) treated rats.

Materials and Methods: Sprague-Dawley rats were divided into 6 groups, each containing 8 rats. Two groups of rats were left untreated and served as male and female controls. Another 4 groups of rats were fed a 1% EG lithogenic diet for 4 weeks. Among them, 2 groups were male and female rats and 2 groups were castrated. We analyzed 24-hour urine samples for urinary constituents, such as calcium, oxalate, citrate, uric acid, creatinine clearance and fetuin-A. The kidneys were examined for crystal deposit by histological examination and for osteopontin expression by immunohistochemical staining.

Results: Oxalate excretion increased and citrate excretion decreased significantly in male and female rats fed EG. In the male rats, oxalate excretion was significantly greater in intact male rats fed EG than in castrated male rats with EG, on the contrary, citrate excretion was not different. Crystal deposits in kidney were stronger in intact male rats fed EG than in castrated male rats with EG. In female rats, oxalate excretion was significantly higher in EG diet rats with castration than in those without castration. Citrate excretion in both groups was not significantly

different. Castrated female rats with EG diet showed more crystal deposits than intact female rats with or without EG diet. Renal osteopontin and urine fetuin-A expression correlated with crystal deposits in kidney (Spearman's $r=0.676$ and 0.511 , respectively; $p<0.0001$).

Conclusions: Testosterone appears to promote whereas estrogen inhibit calcium oxalate stone formation by modulating urinary oxalate excretion in EG treated rats. The exposure to calcium oxalate crystal induces osteopontin and fetuin-A which may have a significant role in calcium oxalate nephrolithiasis.

UP570

The Microgravitational Effects of Space Flight on the Urological System

Drinnan N, Ni Raghallaigh H, Crawford R, Chetwood A, Emara A, Bott S, Barber N
 Frimley Park Hospital, Surrey, UK

Introduction and Objectives: Space travel results in short and long-term effects on the human body. There is a bone mass loss rate of 3% per month, muscle atrophy at 5% per month and oxygen consumption reduced by 25%. The change in urinary composition, resulting in stone formation, is the commonest urinary condition caused by microgravity.

Materials and Methods / Results: Bone loss is manifest by negative calcium balance. Osteoporosis results, with increased calcium and phosphate excretion, fractures, weakness and urinary stones. Dietary changes, with increased protein and salt (in food preservatives), along with decreased urine volumes and increased urine saturation are all factors. Increased risk for calcium oxalate and phosphate stones during flight, and increased risk for oxalate and uric acid stones immediately after flight also exist – attributed to nutrition, low urine volumes and higher urinary pH. The higher incidence of struvite stones has also been investigated. Nanobacterial colonies in the nucleus of stones suggest that bacteria participate in stone formation as well as growth. Nanobacteria (NB) produce carbonate apatite – considered to be a nidus initiating stone formation. One NASA research project assessed stone formation in astronauts by examining NB cultures in High Aspect Rotating Vessels which were designed to stimulate microgravity and showed NB's multiplied 4.6 x faster concluding that they had increased multiplication in microgravity.

Conclusion: Space flight affects the urological system mainly by increasing stone formation. Negative pressure chamber treadmills, alkali therapy and aggressive hydration are recommended countermeasures but the importance of pre-flight screening cannot be overemphasized.

UP571

The Usefulness of Stone Density and Patient Body Mass Index in Predicting Extracorporeal Shock Wave Efficiency

Abbar M, Janane A, Dakkak Y, Ghadouane M, Ameer A

Dept. of Urology, Mohammed V Military Hospital of Rabat, Rabat, Morocco

Introduction and Objectives: To determine the role of stone density and skin-to-stone distance (SSD) by non-contrast computed tomography of the kidneys, ureters and bladder (CT-KUB) in predicting the success of extracorporeal shock wave lithotripsy (ESWL).

Materials and Methods: We evaluated 267 patients who received ESWL for renal and upper ureteric calculi measuring 5-20mm, over a 50 month period. Mean stone density in Hounsfield units (HU) and mean SSD in millimeters (mm) was determined on pre-treatment CT-KUB at the CT workstation. ESWL was successful if post-treatment residual stone fragments were ≤ 3 mm.

Results: ESWL success was observed in 63.5% of the patients. Mean stone densities were 513 ± 163 and 795 ± 101 HU in ESWL successful and failure groups, respectively; this was statistically significant ($p < 0.001$, student's t-test). Mean SSD were 11.2 ± 1.8 and 12.4 ± 2.2 cm in ESWL successful and failure groups, respectively, this was not statistically significant.

Conclusion: This study shows that stone density can help in predicting the outcome of ESWL. We propose that stone densities < 500 HU are highly likely to result in successful ESWL. Conversely, stone densities > 800 HU are less likely to do so. This should be accounted for when considering ESWL.

UP572

Study of Bone Mineral Density in Patients with Calcium Stones Depending of Lithogenic Activity

Arrabal-Martín M¹, Valderrama-Illana P¹, Poyatos-Andujar A¹, Quesada-Charneco M¹, Abad-Menor F¹, Giron-Prieto M¹, Cano-García M², De Haro-Muñoz T¹, Arias-Santiago S¹, Arrabal-Polo M¹

¹San Cecilio University Hospital, Granada, Spain; ²Morales Meseguer University Hospital, Murcia, Spain

Introduction and Objectives: The lithogenic activity, defined in the Urolithiasis Process Integrated of Andalusia Government in 2012, is classified according to the lithiasis recurrences and new episodes like mild, moderate and severe activity. This allows us to classify patients and to study the metabolic and bone disorders in terms of stone activity. The objective was to analyze the differences in relation to bone mineral density between moderate and severe lithogenic activity and the degree of compliance with the cutoffs previously established by our

group in other investigations.

Materials and Methods: From January to December 2013, a total of 92 patients with calcium stones and moderate or severe lithogenic activity were included in the study. Percentage of osteopenia / osteoporosis, differences between bone mineral density loss dependent of lithogenic activity and proportion of patients with values above cutoff regarding were analyzed: β -crosslaps > 0.311 ; Osteocalcin > 13.2 ; β -crosslaps/osteocalcina > 0.024 ; Calciuria $24 \text{ h} > 206.6$; fasting calcium / creatinine in urine > 0.105 . Statistical analysis with SPSS 17.0 program was performed.

Results: The mean age was 44 ± 11.8 years, 45 males and 47 females, 69 with moderate and 23 patients with severe lithogenic activity. A total of 59.8% of patients had osteopenia / osteoporosis in the lumbar spine, which was reduced to 38% and 32.6% in the femoral neck and hip respectively. After dividing the patients according lithogenic activity, the percentage of osteopenia / osteoporosis was greater and statistically significant at the lumbar spine ($p = 0.01$) and femoral neck ($p = 0.03$) in patients with severe lithogenic activity respect moderate activity. Over 60% of patients presented values above previously established in one or more of the parameters previously discussed in other publications of our group included in material and methods.

Conclusion: Patients with calcium stones and severe lithogenic activity present more loss of bone mineral density. In general, bone mineral density is a factor to be considered in patients with recurrent calcium nephrolithiasis that must to be studied and monitored, due to it is altered in a significant percentage of these patients.

UP573

Bone Mineral Density in Women with Recurrent Calcium Stones: Results of a Case-Control Study

Arrabal-Polo M¹, Valderrama-Illana P¹, Poyatos-Andujar A¹, Abad-Menor F¹, Quesada-Charneco M¹, Giron-Prieto M¹, Cano-García M², Arias-Santiago S¹, Arrabal-Martín M¹
¹San Cecilio University Hospital, Granada, Spain; ²Morales Meseguer University Hospital, Murcia, Spain

Introduction and Objectives: In the pathogenesis of calcium nephrolithiasis, different factors are involved and predispose to present stones. In recent years, our research group is studying the relationship between recurrent calcium stones and bone mineral density loss in patients without changes in mineral metabolism hormones. The calcium lithiasis which is accompanied by fasting hypercalciuria is associated in a significant percentage of patients with loss of bone mineral density. The objective of this study was to analyze the loss of bone mineral density in middle-aged women with recurrent

calcium stones compared control group.

Materials and Methods: A case-control study, with an inclusion period between January to December 2013, including 47 patients with stone disease (Group 1) and 41 patients without stones or control group (Group 2) were performed. Patients included without alteration of bone metabolism or consumption drugs that may interfere with bone mineral density and/or lithogenesis. Blood and urinary metabolic study of patients and bone densitometry were performed and the results were analyzed with the SPSS 17.0 program.

Results: After performing univariate statistical analysis we observed that there were statistically significant differences in age (42.6 ± 12.7 Group 1 vs. 52.6 ± 7.8 Group 2, $p = 0.001$), lumbar spine T-score (-1.4 ± 1.1 Group 1 vs. -0.7 ± 1.3 Group 2, $p = 0.03$), lumbar spine Z-score (-0.7 ± 1 Group 1 vs. 0.1 ± 1.3 in Group 2, $P = 0.002$), hip Z-score (-0.3 ± 0.8 Group 1 vs. 0.1 ± 1 Group 2; $p = 0.02$) and femoral neck Z-score (-0.4 ± 0.7 Group 1 vs. 0.05 ± 1 Group 2, $p = 0.04$). In the multivariate analysis, we observed that age is not an independent factor associated with bone mineral density therefore does not affect the loss of bone mineral density. We observed no significant differences in relation to lithogenic markers.

Conclusion: Patients with recurrent calcium stones have an increase of bone mineral density loss, not age-related or hormone bone metabolism, possibly an intrinsic bone disorder in which bone resorption predominates.

UP574

Chronic Treatment with Cystone for Small Pyelocaliceal Stones

Multescu R, Geavlete B, Georgescu D, Satalan R, Geavlete P

Dept. of Urology, "Saint John" Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objectives: Medical treatment of small pyelocaliceal stones may be a very difficult task. The aim of our study was to determine the value of multitherbal extract Cystone in the treatment of this pathology.

Materials and Methods: We analyzed 50 patients treated in our department for pyelocaliceal stones between 4 and 6 mm. A total of 38 patients had single stones and 12 had between 2 and 5 lithiasic fragments. All patients received treatment with multitherbal formulation Cystone 2 tablets twice daily and were reassessed after 3 months with ultrasonography.

Results: Among the 38 patients with single stones, in 9 patients no lithiasic fragments were identified after the treatment, while in 20 cases their dimensions were reduced. In 6 patients the stones had the same diameter while in 3 patients the dimensions increased. In one case a second stone was identified. Among the 12 cases with multiple stones, decrease of the

diameter of at least one fragment occurred in 8 cases, while disappearance of at least one fragment was encountered in 2 cases.

Conclusions: Cystone treatment in patients with small uncomplicated pyelocaliceal stones may be an effective alternative. Taking into consideration the endourologic treatment costs of these patients underlines the importance of having such alternatives.

UP575

Conservative Treatment in Patients with Ureteral Stones and Renal Colic

Multescu R, Georgescu D, Satalan R, Geavlete B, Geavlete P

Dept. of Urology, "Saint John" Emergency Clinical Hospital, Bucharest, Romania

Introduction and Objectives: Renal colic is one of the main causes of patients' presentation in the ER. The aim of our study was to evaluate the particularities of these patients and efficacy of medical expulsive therapy.

Materials and Methods: This study included the patients presented into ER with renal colic between January 2013 and December 2013. Patients who benefited of medical expulsive therapy and their further evolution were analyzed.

Results: A total of 5132 patients came to the ER with renal colic, of which 4054 (82%) underwent medical expulsive therapy with anti-inflammatory drugs, analgetics and α -blockers: 3108 after evaluation of calculi characteristics and 946 on demand. A total of 851 patients were lost for follow-up. In 1002 cases multiherbal extract Cystone was associated to the treatment both during the acute period but also as a chronic treatment in the following period. From the 3203 patients, 480 necessitate a surgical procedure for urolithiasis during the following month: 112 from the Cystone group (11.2% of the Cystone treated patients) and 368 from the non-Cystone group (17.5%). A supplementary number of 61 patients necessitate a surgical procedure for urolithiasis until the end of the year: 3 from the cystone group (0.3%) and 58 from the non-Cystone group (2.8%).

Conclusions: Medical expulsive treatment is an efficient method to effectively treat a renal colic. Association of Cystone seems to improve

the chances of stone expulsion, the differences increasing in the long run.

UP576

Comparison of Treatment Outcomes According to Output Voltage during Shockwave Lithotripsy for Ureteral Calculi: A Prospective Randomized Multicenter Study

Park J¹, Woo S¹, Kim H², Hong S³, Yang H⁴, Chung H⁵, Yun S⁶

¹Eulji University Hospital, Daejeon, South Korea;

²Konyang University College of Medicine, Daejeon, South Korea;

³Dankook University College of Medicine, Cheonan, South Korea;

⁴Soonchunhyang University Cheonan Hospital, Cheonan, South Korea;

⁵Konkuk University, Chungju, South Korea;

⁶Dept. of Urology, College of Medicine, Chungbuk National University, Cheongju, South Korea

Introduction and Objectives: Despite prior studies which investigated the effects of fixed versus escalating voltage output on stone-free rates (SFRs) during shockwave lithotripsy (SWL) for renal calculi, there are few studies for ureteral calculi (UC). We investigated whether fixed versus escalating voltage treatment strategy affects SFRs in UC.

Materials and Methods: A prospective randomized multicenter trial was conducted with 120 patients 18 years or older who were referred for acute renal colic and diagnosed with a single radiopaque UC < 15mm, and were randomized into Group A (n=60, constant 13kV, 3000 shock wave, 2Hz) or B (n=60, 11.4kv-12.0kv-13kv per 1000 shock waves, 2Hz). *In situ* SWL was performed using the Sonolith® Praktis (EDAP TMS) as an outpatient procedure. Patients were evaluated at 1 week after SWL by KUB and urinalysis, and if residual stones were observed at follow-up, repeat SWL was performed. The primary endpoint was SFR at 1 week after SWL. Secondary endpoints were post-SWL visual pain score (VPS), oral analgesic requirements during 1 week, and cumulative SFRs after 2nd and 3rd sessions of SWL.

Results: The two groups were well balanced in terms of baseline characteristics including past stone history, pre-SWL VPS, stone location and size (A; 6.27±1.92 versus B; 6.30±2.13 mm). All patients were evaluated at week 1, and SFRs were not different between the groups (A;

61.7% versus B; 68.3%, p=0.566). Analyses stratified by stone location (proximal versus distal) showed that the groups did not differ in SFRs in proximal UC (p=0.487), but Group B had a relatively higher SFR versus Group A in distal UC (81.0% versus 50.0%, p=0.052). Meanwhile, the groups did not differ in SFRs in the analysis stratified by stone size (<6mm versus ≥6mm). Secondary endpoints were similar between the groups. On multivariate logistic regression analysis, only stone size was a significant predictor for stone-free status (p<0.001, OR=1.649), whereas SWL power strategy was not (p=0.223, OR=0.587).

Conclusion: In our study including homogeneous patient populations with UC, escalating voltage power during SWL did not provide superior stone fragmentation compared with conventional fixed voltage strategy. Further studies are needed to elucidate the exact mechanism.

UP577

Pulmonary Complications in Percutaneous Nephrolithotomy with Upper Calyx Access

Demirtas A, Doganay Y, Baydilli N, Sabur V, Akınsal E, Ekmekcioglu O, Demirci D, Gulmez I

Erciyes University, Kayseri, Turkey

Introduction and Objectives: To evaluate the pulmonary complications for upper calyces accesses in patients who underwent percutaneous nephrolithotomy (PCNL) due to kidney stones in our clinic.

Materials and Methods: Data of the patients who underwent PCNL with upper calyces access because of staghorn or upper calyx stones in our clinic between 2004 and 2012 were used.

Results: Upper calyx access was performed on 211 of 1180 patients that underwent PCNL. A total of 127 patients (60.1%) were male and 84 patients (39.9%) were female. Mean operative time was 107 minutes; mean fluoroscopy time was 14.6 minute, nephrostomy pick up time after surgery was 3.1 days. According to access locations, 46 (21.8%) patients had upper calyx isolated access, 80 (37.9%) patients had lower + upper calyx access, 44 (20.9%) patients, had mid + upper calyx access, 41 (19.4%) patients had lower + mid + upper calyx access. Twelve of 211 upper calyx access developed

UP577, Table 1. Complications for Upper Calyx Access and Stone-Free Rates

| Access | Number (n, %) | Fever (n, %) | Bleeding (n, %) | Extravasation (n, %) | Pneumo-hemothorax (n, %) | Stone free (n, %) |
|-----------------------------|---------------|--------------|-----------------|----------------------|--------------------------|-------------------|
| Isolated upper calyx | 46, 21.8 | 3, 10.7 | 3, 12.5 | 0 | 8, 66.6 | 36, 22.2 |
| Upper + lower calyces | 80, 37.9 | 14, 50 | 9, 37.5 | 2, 20 | 4, 33.3 | 64, 39.5 |
| Upper + mid calyces | 44, 20.8 | 5, 17.8 | 6, 25 | 4, 40 | 0 | 35, 21.6 |
| Upper + mid + lower calyces | 41, 19.4 | 6, 21.4 | 6, 25 | 4, 40 | 0 | 27, 16.6 |
| Total | 211, 100 | 28, 100 | 24, 100 | 10, 100 | 12, 100 | 162, 100 |

pneumo-hemothorax that was treated with chest tube. Upper calyx access complications and stone-free rates are shown in Table 1.

Conclusion: Pneumo-hemothorax is seen with substantial rate for upper calyx accesses. A compelling upper calyx access should be avoided unless it is a must and this procedure needs more attention. Our highest rate of pulmonary complications of upper calyx access may depend on the number of patients more than other studies.

UP578

Cystone Treatment in Patients with Infectious Stones

Geavlete P, Multescu R, Georgescu D, Satalan R, Geavlete B
"Saint John" Emergency Clinical Hospital,
Bucharest, Romania

Introduction and Objectives: Patients with infectious stones have an increased risk of recurrence. Various treatment alternatives such as urease inhibitors may have significant adverse events. It was advocated that multiherbal extract Cystone has an *in vitro* effect of struvite crystal growth inhibition. The aim of our study was to evaluate the effect of this treatment following surgical removal of struvite stones.

Materials and Methods: We retrospectively evaluated 48 patients with struvite stones

apparently rendered stone free by retrograde flexible ureteroscopic approach or PCNL. Post-operative long term antibiotherapy was applied in all cases. Antibiotic selection was made using the data provided by culture of stone fragments. In 20 patients Cystone treatment for 3 months was associated while the rest of 18 patients received only antibiotics.

Results: Small stone fragments were identified during the 12-month follow-up in 2 patients of the Cystone group and 10 patients of the control group. Stones requiring surgical treatment were encountered in 2 patients of the Cystone group and in 4 patients of the control group.

Conclusions: Cystone may be an effective treatment in infectious stones prophylaxis associated with antibiotics. Further studies are required to prove this hypothesis.

UP579

Oxalobacter Formigenes: Opening the Door of Probiotic Therapy for the Treatment of Hyperoxaluria

Jairath A¹, Parekh N¹, Otano N^{1,2}, Mishra S¹, Sabnis R¹, Desai M¹

¹Muljibhai Patel Urological Hospital, Nadiad, India; ²Hospital Universitario de Caracas, Caracas, Venezuela

Introduction and Objectives: To determine

the early effect of the administration of *Oxalobacter formigenes* in the metabolic pattern of patients with calcium oxalate stones, comparing it with potassium magnesium citrate (KMgCit).

Methods: Eighty patients were randomized to receive either 30 mEq of KMgCit or 700 millions of *O. formigenes*, both twice a day. Serum creatinine, serum uric acid, serum calcium and phosphorus, serum iPTH (if serum calcium >10.5 mg/dl) and 24 urine metabolic evaluation for various metabolites like oxalate, calcium, phosphorus, citrate, magnesium, uric acid and creatinine were evaluated at baseline and at one month after starting the treatment.

Results: In both groups hyperoxaluria was the most common abnormality followed by hypercalciuria. The incidence of hyperoxaluria decreased at one month when compared to baseline in both KMgCit (77.5% vs. 37.5%, $p = 0.0006$) and *O. formigenes* preparation (82.5% vs. 15%, $p < 0.0001$) groups, while other urinary metabolic abnormalities were similar at baseline and one month in both groups. Three patients in the KMgCit presented mild self-limited secondary symptoms.

Conclusions: When compared to KMgCit, *O. formigenes* preparation is more effective in decreasing the incidence of hyperoxaluria, opening the door to probiotic therapy as potential new weapon against hyperoxaluria.

UP580, Table 1. Characteristics and multivariate analysis of the bladder stone group and control group

| t-test | Bladder stone (n=27) | | Control (n=244) | | p-value |
|------------------------------|----------------------|-------------|-----------------|----------------|---------------|
| Age (y) | 74.3±7.7 | | 69.7±8.2 | | 0.006 * |
| BMI (kg/m ²) | 23.8±2.8 | | 24.0±2.9 | | 0.726 |
| IPSS score | 18.6±9.1 | | 20.6±8.5 | | 0.392 |
| TRUS | | | | | |
| Total volume (g) | 65.0±36.7 | | 47.5±26.5 | | 0.003 * |
| Transitional volume (g) | 37.6±25.1 | | 25.1±18.8 | | 0.002 * |
| IPP (mm) | 11.5±10.0 | | 3.4±5.5 | | <0.001 * |
| Uroflow parameters | | | | | |
| Qmax (mL/s) | 7.1±3.3 | | 10.6±6.3 | | 0.010 * |
| VV (mL) | 121.3±75.0 | | 166.3±116.5 | | 0.063 |
| PVR (mL) | 111.8±153.8 | | 73.9±81.5 | | 0.053 |
| Urodynamic study | | | | | |
| Pdet Qmax (cmH2O) | 52.9±27.6 | | 43.1±27.6 | | 0.254 |
| Pdet max (cmH2O) | 63.1±27.4 | | 56.6±31.8 | | 0.503 |
| BOOI | 37.8±30.8 | | 23.1±30.6 | | 0.124 |
| Multivariate analysis | B | S.E. | p-value | Exp (B) | 95% CI |
| Age | 0.085 | 0.037 | 0.020 * | 1.089 | 1.014-1.170 |
| TRUS – total | 0.009 | 0.007 | 0.205 | 1.009 | 0.995-1.024 |
| TRUS – IPP | 0.136 | 0.034 | <0.001 * | 1.145 | 1.072-1.223 |
| Uroflow – Qmax | -0.143 | 0.061 | 0.019 * | 0.866 | 0.768-0.977 |

BMI: body mass index, IPP: intravesical prostatic protrusion, Qmax: maximum uroflow rate, VV: voided volume, PVR: post-void residual urine volume, Pdet Qmax: detrusor pressure at maximum flow, Pdet max: maximum detrusor pressure during voiding, BOOI: bladder outlet obstruction index

UP580

Intravesical Prostatic Protrusion Is a Risk Factor for Bladder Stone Formation in Patients with Benign Prostatic HyperplasiaKim J¹, Chae J¹, Yoon C¹, Kang S², Park H¹, Kim J², Moon D¹¹Dept. of Urology, Korea University Guro Hospital, Seoul, South Korea; ²Dept. of Urology, Korea University Anam Hospital, Seoul, South Korea

Introduction and Objectives: To assess the risk factor that influences bladder stone formation in patients with benign prostatic hyperplasia (BPH).

Materials and Methods: We retrospectively reviewed the data of 271 consecutive patients with BPH who underwent transurethral resection of the prostate (TURP). Patients were classified into two groups based on the presence of a bladder stone: patients in Group 1 had a bladder stone and patients in Group 2 did not. Univariate analysis was performed to determine the association between bladder stone formation and the patients' age, body mass index (BMI), IPSS, total prostate volume (TPV), transitional zone volume (TZV), IPP, uroflow and urodynamic parameters. Patients excluded from the study were those with prostate cancer, foreign bodies in the bladder, urinary tract infection, urethral stricture, bilateral hydronephrosis, renal impairment or neurogenic bladder.

Results: The overall rate of bladder stone formation in patients with BPH was 9.9% (27/271). The mean TPV was 65.0 ± 36.7 g in Group 1 and 47.5 ± 26.5 g in Group 2. The mean IPP score was 11.5 ± 10.0 mm, and 3.4 ± 5.5 mm and the Qmax was 7.1 ± 3.3 mL/s and 10.6 ± 6.3 mL/s in Group 1 and Group 2, respectively. The patients' BMI, IPSS, and urodynamic parameters did not significantly differ between the two groups. The patients' age, TPV, TZV, and IPP were all significantly higher and the Qmax was significantly lower in Group 1 than in Group 2 (Table 1). Multivariate analysis revealed that age (HR=1.089, p=0.020), IPP (HR=1.145, p<0.001), and Qmax (HR=0.866, p=0.019) significantly affected bladder stone formation in patients with BPH.

Conclusion: This study demonstrated that older age, longer IPP, and lower Qmax are independent factors that influence bladder stone formation in patients with BPH.

UP581

Cystine Stone: Experience of 14 Cases from a Single Center

Park H

Asan Medical Center, Seoul, South Korea

Introduction and Objectives: To evaluate clinical courses and outcomes of patients with cystine stones from the experience of a single institution.

Materials and Methods: We reviewed the data of 14 patients with cystine stones who visited our institution from March 1994 to July 2012. We examined age at first visit, gender, stone burden, urine pH and family history of patients and analyzed average number of repeated surgeries, stone locations, types of surgeries, medical treatment, number of recurrences as well as presence of single kidney.

Results: Mean age at first visit to our institution was 18.7 ± 6.9 years and 8 patients were males. Stone burden and mean urine pH before each surgeries were 6.7 ± 3.2 cm² and 6.5 ± 0.9 respectively. There were 2 patients who replied to have family histories. Patients underwent surgeries average of 2.7 times for 23 (41.1%) cases of calyceal stones, 2 (3.6%) cases of pevis stones and 31 (55.3%) cases of ureter stones. Mean time interval of each surgeries was 29.6 ± 17.3 months and 1 open surgery, 12 percutaneous nephrolithotomies, 25 ureterorenoscopies were performed. Potassium citrates were used in 6 patients, as well as D-penicillamines used in 3 patients continuously. Patients had average of 3.2 times of recurrence during the mean follow-up period of 60.3 months and 2 patients were with single kidneys.

Conclusions: Our data shows that patients with cystine stones have high recurrence or regrowth rates and relatively large stone burdens. Therefore, it is essential to establish adequate treatment schedule to prevent possible deterioration of renal function in these patients.

UP582

Can Ultrasound Be a Single Diagnostic Modality in Ureteral Stone DiseaseRaghavendran M, Prasad S, Kaushik V
Apollo BGS Hospitals, Mysore, India

Introduction and Objectives: We review the results of Emergency Ultrasound in acute ureteral colic patients.

Materials and Methods: Nearly sixty patients presenting with acute colic to the Emergency department who underwent Ultrasound were included in the study. Patients opting for medical expulsive therapy formed the main component of the study.

Results: Patients presenting with colic underwent ultrasound on emergent basis by a single senior consultant radiologist. Sixty patients who had mild hydronephrosis without visualisation of stone were included. Thirty four of these patients did not agree for CT scan because of the fear of radiation and cost. The rest 26 underwent CT scan. The stone in these patients was found to be in middle or lower ureter and the size was two to six millimeters. Thirty four patients, who opted for medical expulsive therapy based on the Ultrasound findings, were advised repeat Ultrasound at two weeks' time if they were asymptomatic. They were also advised CT, if troublesome symptoms persisted.

Fourteen of these patients had to undergo CT due to persistent symptoms. All these patients had stones in the lower ureter with the size being two to four millimeters. The remaining twenty patients underwent repeat Ultrasound at two weeks' time. Eighteen of these patients had no hydronephrosis at repeat scan. Two patients had persistent hydronephrosis despite being asymptomatic and were found to have small lower ureteric stones on CT.

Conclusion: There is no doubt that CT is the diagnostic modality of choice in Ureteral stone disease. A properly performed Ultrasound in Emergency by a senior radiologist can be used as a single diagnostic modality in select group of patients. This is a useful cost saving procedure in developing countries and also is useful in patients who have fear of radiation exposure.

UP583

Management of Renal Colic with Oral DesmopressinPricop C¹, Suditu N¹, Puia D¹, Bucuras V², Orsolya M³, Radavoi G⁴¹Gr. T. Popa University of Medicine and Pharmacy, Iasi, Romania; ²Victor Babes University of Medicine and Pharmacy, Timisoara, Romania; ³University of Medicine and Pharmacy, Targu Mures, Romania; ⁴Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Introduction and Objectives: Renal colic is a common urological emergency. This symptom is caused by the increase pressure in the pyelocaliceal system secondary to obstruction of the urinary flow. Increased pyelocaliceal system pressure is correlated with higher prostaglandin (PG) E2 levels, enhanced blood flow and diuresis. Nausea, vomiting and intense pain will determine antidiuretic hormone secretion with secondary PGE2 increase production, contributing to a vicious circle of pain. The purpose of this study is to evaluate the effectiveness of desmopressin acetate tablets, an antidiuretic drug, in treating patients with acute renal colic.

Materials and Methods: Eighty-two patients, mean age 39.8 years, 53 men and 29 women, admitted to the emergency room with acute renal colic were randomly assigned in five groups to receive 60 or 120 µg sublingual desmopressin ± 30 mg Ketorolac intramuscularly or only 30 mg Ketorolac intramuscularly. Pain intensity was recorded using a 0-to-10 pain intensity visual analog scale (VAS) before drug administration and thirty minutes afterwards.

Results: At presentation, a 3 to 10 pain intensity on VAS scale was reported with a median of 8.13 points. Desmopressine was statistically significant more effective than anti-inflammatory (AINS) therapy in improvement of the visual analog scores at 30 minutes, the effect not being influenced by the desmopressine dose used; the improvement of mean visual analog scale was 4.24 points in patients treated with

desmopressin compared with 2.84 points in those treated only with AINS ($p=0.01$). Young patients are more likely to respond to desmopressin treatment. There were not statistically significant differences between the groups in which different doses of desmopressin (60 versus 120 μg) were used ($p=0.43$). There were no significant differences between Desmopressin group and desmopressin associated with AINS group in pain reduction (3.91 compared with 4.52 points on VAS scale, $p=0.30$).

Conclusions: This prospective study provides remarkable information about the efficacy of desmopressin on pain relief in symptomatic urinary calculi. We conclude that the simplicity and effectiveness of sublingual desmopressin tablets in treating renal colic makes this simple method a useful means of confronting a frequent and disturbing urological problem.

UP584

Bilateral Simultaneous Ureteroscopy (BS-URS) for Stone Disease: Systematic Review of Literature

Rai B¹, Ishii H², Agrawal V³, Harris M², So-
mani B³

¹Ninewells Hospital, Dundee, UK; ²University Hospital Southampton NHS Trust, Southampton, UK; ³University of Rochester Medical Center, Rochester, USA

Introduction and Objectives: Bilateral simultaneous ureteroscopy (BS-URS) for management of bilateral ureteric and/or renal and or a combination of these stones can be challenging. We did a systematic review of literature to look at the role of BS-URS for management of stone disease.

Materials and Methods: We searched MEDLINE, PubMed and the Cochrane Library from January 1990 to October 2013 for results of bilateral ureteroscopy and stone treatment. Inclusion criteria were all English language articles reporting on these procedures. Where more than one paper was published from the same database the most recent paper was included. Data was extracted on the outcomes and complications and the results were analyzed.

Results: Nine studies reported on 390 patients

with a male:female ratio of approximately 2:3. The age range was 11-97 years with ureteric dilatation reported in 157 patients. The stone size ranged from 6-21mm with the total stone burden from 6-59 mm. The operative time ranged from 21-137 minutes with the stone free range (SFR) from 85-98.7% that was higher for stones <1cm in size. Hospital stay ranged from 1-7 days. There were 57 (14.5%) minor (Clavien 1 or 2) complications including post-operative fever ($n=16$, 4%), haematuria ($n=33$, 8.5%) and UTI ($n=8$, 2%) with 32 (8%) major (Clavien 3, 4 or 5) complications including ureteric perforation or mucosal injury ($n=24$, 6%), ureteric stricture ($n=4$, 1%), urosepsis ($n=2$, 0.5%) and urinoma and pulmonary embolism (PE) in one patient each. There were two deaths reported (including patient with PE and urosepsis).

Conclusions: Bilateral simultaneous ureteroscopy for stone disease has a good stone clearance rate but with a complication rate, which is higher than staged ureteroscopy and a small but not insignificant risk of major complications. Surgeons performing these procedures should maintain their outcomes and patients undergoing these procedures should be appropriately counseled.

UP586

The Efficacy of Tamsulosin (Tams) Alone vs. Corticosteroids Alone vs. Tamsulosin + Corticosteroids in Determining the Spontaneous Passage of Distal Ureteral Stones: Results of a Prospective Study

Brausi M¹, Giliberto G², Viola M¹

¹Dept. of Urology, AUSL Modena, Carpi, Italy;

²Dept. of Urology, Treviglio-Caravaggio Hospital, Milan, Italy

Introduction and Objectives: The objectives of the study were to evaluate and compare the efficacy of tamsulosin alone vs. tamsulosin + prednisone vs. prednisone alone in determining the spontaneous passage of distal ureteral stones 1cm or less, to determine the number of endourological procedures saved and to observe toxicity.

Materials and Methods: From September 2008 to February 2011, 120 patients with

renal colic admitted to the emergency departments of 2 urological centres were recruited in this prospective, not randomised study. The diagnosis of distal ureteral stones was obtained with x-ray of the abdomen and CT. After a signed informed consent, patients received 3 therapeutic regimens: 40 patients (Group A) tamsulosin 0.4mg/d alone, 35 patients (Group B) prednisone 25mg/d x 5 days, 10mg x 5 days and 5 mg x 5 days, 45 patients (Group C) tamsulosin 0.4mg + prednisone (same schedule). Therapy was prescribed at home for 15 days in all the patients. Exclusion criteria were: diabetes, hypotension, complicated stones (fever, pyonephrosis), requiring emergency endoscopic procedures. We evaluated: a) spontaneous stone passage rate; b) endo-urological procedures required (ureteroscopy + laser treatment, JJ); c) side effects.

Results: The mean patients' age was 44.7, 49.2 and 42.3 in groups A, B, C respectively. All the stones were in the distal part of the ureter. The mean diameter of the stones was: 7.3 mm (3-10mm), 4.2 mm (2.7-7.5mm), 7mm (4-10mm) in groups A, B, C respectively. Three patients in Group A and 3 patients in Group B were lost to follow-up. The spontaneous passage of the stone was observed in: 67.5% (23/37), 34.2% (12/35) and 92.8% (39/42) in groups A, B, C respectively. Endourological procedures (ureteroscopy with laser lithotripsy and JJ) were used in 33.5%, 65%, and 7.8% in groups A, B, C. Three out of 37 patients in Group A (8.1%) and 2/42 patients in Group C (4.7%) had to stop medical treatment for hypotension and malaise vs. 0 in Group B.

Conclusions: The combination therapy (tamsulosin + prednisone) resulted in the most effective treatment for spontaneous passage of distal ureteral stones (92.8%) and determined a significant reduction in endourological procedures (8% vs. 33%-72%). Side effects from therapy were observed in 8% (Tamsulosin alone) and 5% (Tamsulosin + Prednisone).

UP587

Association between Urinary Calculi and Acute Coronary Syndrome: A Case-Control Study in Taiwan

Wu W, Hung S, Chung S

Dept. of Surgery, Div. of Urology, Far Eastern Memorial Hospital, Ban Ciao, Taipei, Taiwan

Introduction and Objectives: The increased prevalence of acute coronary syndrome (ACS) has been reported in patients with obesity, diabetes, hyperuricemia and chronic inflammation seems to involve in this linkage. Stone disease is associated with systemic metabolic and hormone disorders which shared common risk factors of ACS; however, limited studies have investigated that association between ACS and urinary stones (US). The aim of this study is to estimate the risk of ACS during a five-year

UP584, Table 1.

| NATURE OF COMPLICATION | NUMBER OF COMPLICATION |
|---|------------------------|
| False passage/ureteral perforation/laceration | 24 (6%) |
| Haematuria | 33 (8.5%) |
| Urinary tract infection (UTI) | 8 (2%) |
| Post-operative pyrexia/mild fever | 16 (4%) |
| Severe Urosepsis | 2 (0.5%) (1 Death) |
| Urinoma | 1 |
| Pulmonary embolism (PE) | 1 (1 Death) |
| Ureteric stricture | 4 (1%) |

follow-up period after the first ambulatory care visit for the treatment of US using nationwide, population-based data and a retrospective case-control cohort design in Taiwan.

Materials and Methods: We identified 30,142 patients with US as the study group and randomly selected 121,768 patients as the comparison group. Each patient was individually tracked for five years to identify all those who developed ACS during the follow-up period. Cox proportional hazards regressions were performed to calculate the hazard ratios (HRs) of ACS for the 2 groups. Main outcome was measured. Stratified Cox proportional hazard regressions were performed as a means of comparing the five-year ACS-free survival rate for the two cohorts.

Results: Of the sampled patients, 1011 ACS events (10.0 per 10,000 person-years) developed within the five-year follow-up period, that is, 275 events (13.4 per 10,000 person-years) from the study cohort and 736 events (9.1 per 10,000 person-years) developed in patients from the comparison cohort. The log rank test indicated that patients with UC had significantly lower five-year ACS-free survival rates than those in the comparison cohort ($p < 0.001$). After adjusting for the patient's monthly income, occupation, hypertension, diabetes, hyperlipidemia, cerebrovascular accident, chronic obstructive pulmonary disease, end-stage renal disease and urinary tract infection, patients with UC were more likely to have ACS during the five-year follow-up period than patients in the comparison cohort (HR=1.22, 95% CI = 1.05-1.40, $p < 0.001$). A sub-analysis revealed that younger (age < 49 years) patients are at higher risk to develop ACS (HR=1.76, 95% CI = 1.33-2.33, $p < 0.001$).

Conclusion: These results suggest that US patients with a younger age is associated with increased risk of ACS event.

UP589

Is Ultrasound Scan a Useful Imaging in our Day-to-Day Renal Colic Approach?

Patruno G¹, Wadhwa K², Germani S¹, Iacovelli V¹, Vespasiani G¹, Miano R¹

¹Dept. of Urology, University of Rome Tor Vergata, Rome, Italy; ²Dept. of Urology, Addenbrookes' Hospital, Cambridge, UK

Introduction and Objectives: Urinary lithiasis is one of the most common diseases in our society. The aim of our study was to investigate if, in the age of spending review and global economic crisis, the relatively cheap renal ultrasound is a reliable diagnostic instrument in patients affected by renal colic.

Materials and Methods: After ERB approval, we enrolled 300 consecutive adult patients who came to our Clinic from Emergency Department after a colic. Gender, age, history of stones, imaging and site of stone were collected.

Results: Of all the patients, 193 (64%) were male (M) and 107 (36%) female (F). The mean age was 42.5 y (range 18-79 y). There were 154 pts (51.3%) who had history of renal colic: 100 pts (51.8%) in Group M and 54 (50.5%) in Group F; 290/300 pts had a kidney ultrasound scan; 162/290 (55.8%) showed signs of ureteric obstruction. Of those, 147 (90.7%) had ureteric stones (spotted on the ultrasound), 110 had hydronephrosis and 37 did not. There were 93/147 pts (63.2%) who had distal ureteric stones, 54 (36.7%) had proximal stones. Only 30 pts (10%) underwent CT scan as second line imaging, of which 15 were positive for calculi (8 proximal and 7 distal).

Conclusions: In our daily practice, ultrasound scanning is a fundamental step in the diagnosis of renal colic. When doubtful, a CT scan can still be performed. In our experience a proper US scan can be diagnostic in up to 90% of the ureteric stones.

UP590

Non-Contrast Computer-Assisted Tomography (CT) Features to Predict Risk of Urosepsis in Patients with Urinary Tract Stones

Taylor L, Omar A, Datta A, Almallah F, Ganta S

Walsall Manor Hospital, Walsall, UK

Introduction and Objectives: Urosepsis is a well-recognized complication of urinary tract calculi. Widespread antibiotic usage is leading to increasingly resistant organism, compromising patient care. Therefore predicting those patients with renal tract calculi, who are at risk of developing urosepsis, would mean more targeted antibiotic therapy and reduction in mortality. This study aims to look at the changes present on non-contrast CT in patients with urosepsis to detect signs that may assist in identifying those patients at risk of developing urosepsis from urinary tract calculi.

Materials and Methods: Retrospective analysis of patients with urosepsis over a 3-year period. Data were collected on demographic, culture results, and results of non-contrast CT. Renal pelvis thickening [grade 1 – no thickening; grade 2 <1= 2mm; grade 3 - <5mm but >2mm; grade 4 - >5mm], renal pelvis contents, parenchymal and peri-renal findings on CT were recorded.

Results: Fifty four patients identified with urosepsis over 3-year period. Thirty two percent of patients had significant findings on non-contrast CT. Hydronephrosis with associated changes in renal pelvis wall thickness/peri-renal fat changes was most common abnormality noted.

Conclusion: Parenchymal changes around urinary tract calculi (renal pelvis thickening / peri-renal fat changes) may be a feature of micro-abscess development in patients with

symptoms of pyelonephritis. Non-contrast CT is the gold standard investigation for urinary tract calculi and predicting those patients at risk of urosepsis using these findings may lead to improved detection and earlier management of patients at risk of urosepsis.

UP591

Retroperitoneoscopic Ureterolithotomy Using the Method 3D Reconstruction of Operation Zone Agreed with the Patient

Dubrov V¹, Bashirov V¹, Egoshin A¹, Furman Y², Rozhentsov A², Yeruslanov R², Kudryavtsev A²

¹Republic Clinical Hospital, Yoshkar-Ola, Mari El Republic, Russia; ²Volga State University of Technology, Yoshkar-Ola, Mari El Republic, Russia

Introduction and Objectives: The problem of choosing minimally invasive endoscopic surgical access for gasless single port or with gas insufflation retroperitoneoscopic ureterolithotomy is solved. The decision is based on the method of presurgery planning grounded on matching the patient with a 3D model of the zone of surgical interest reconstructed according to the results of tomographic examination. **Materials and Methods:** We used hardware-software complex (HSC) for virtual modeling of the surgery zone and choosing the optimum points for minimally invasive surgical access. The complex consists of a PC, original software and mechanical 3D digitizer. The HSC allows for the formation of a virtual 3D model of a patient according to the results of tomography examination and to choose optimum surgical access. The original method of matching the system of coordinates of a virtual model with the patient was offered.

Results: Seventeen patients (8 men and 9 women) with the calculus in the upper part of ureter were realized retroperitoneoscopic ureterolithotomy with applying the method of computer optimization of minimally invasive surgical access. Mean age of the patients was 39.5 (25 - 56) years old. According to computer tomography, the calculi averaged 9 (7 - 14) mm in size. The surgery lasted 39.5 (25-55) minutes. Blood loss was 50.0 (10-90) ml. Healing by first intention was registered with all the patients. The hospitalization time was 5.5 (4-7) days. There were neither any complications or difficulties nor conversions from the incorrectly chosen surgical access.

Conclusions: The choice of the optimum surgical access according to the results of 3D reconstruction of operation zone agreed with the patient was effective in cases of gasless single port and with gas insufflation retroperitoneoscopic ureterolithotomy. The suggested approach possesses wide practical potential for development and is valuable in the process of training of novice surgeons.

UP593

Retrograde Intrarenal Holmium Lithotripsy versus Percutaneous Nephrolithotripsy in the Management of Kidney Stones

Dalva İ, Akan H, Yıldız Ö

Dept. of Urology, Bayındır Hospital, Ankara, Turkey

Introduction and Objectives: The gold standard for removal of renal Stones more than 2cm is percutaneous nephrolithotripsy (PCNL). The indications for retrograde intrarenal surgery (RIRS) have been extended due to recent improvement in endoscopic technology. In this study we compare the results of PCNL and RIRS in the treatment of <3 cm kidney Stones.

Materials and Methods: Between 2012 and 2014, 75 patients who had kidney Stones <3 cm in diameter were treated with RIRS. The outcomes of these patients were compared with 24 patients who underwent PCNL. Comparisons were made in size, operative time, hospitalisation stay, Stone free rate, blood transfusion and complications.

Results: In the PCNL group, Stone free rate was 91% (22/24). There is no need for any other intervention. After RIRS procedure, 68 of 75 patients (90%) were completely Stone free at one month. One patient needed an additional RIRS procedure resulting in an overall success rate of 92% (NS). Two patients had asymptomatic residual fragments <7 mm in the lower pole of the kidney, and these patients had been followed with ultrasonography of the kidney. Operative time was 75 minutes and 124 minutes for PCNL and RIRS respectively ($p<0.05$). Hospitalisation stay was 4.5 and 1.3 days for PCNL and RIRS respectively ($p<0.05$). For complications, hemorrhage necessitated transfusion in 3 patients and necessitated arterial embolisation in one patient who were treated with PCNL. Sepsis in one patient and perirenal hematoma in one patient who were treated with RIRS. The overall Stone free rates and complication rates for PCNL were higher, but the differences were not statistically significant. Operative time was significantly longer in the RIRS group, and postoperative hospital stay was significantly longer in PCNL group.

Conclusion: PCNL and RIRS are safe and effective methods for <4 cm kidney Stones. RIRS may be an alternative therapy to percutaneous nephrolithotripsy, with acceptable efficacy and low morbidity for <3 cm kidney Stones especially in high risk patients.

UP594

Treatment of Urolithiasis with Ureteroscopic Lithotripsy in Kosovo

Haxhiu I¹, Quni X¹, Haxhiu A², Aliu-Quni H³, Haxhiu E⁴, Arifi H², Haxhiu R⁵, Ahmeti H⁶

¹Dept. of Urology, University Clinical Center of Kosovo, Prishtina, Kosovo; ²Plastic Surgery, University Clinical Center of Kosovo, Prishtina,

Kosovo; ³Gynecology and Obstetric, University Clinical Center of Kosovo, Prishtina, Kosovo;

⁴University of Kosovo Faculty of Medicine, Prishtina, Kosovo; ⁵Stomatology, University of Rezonanca, Prishtina, Kosovo; ⁶Pediatric Surgery, University Clinical Center of Kosovo, Prishtina, Kosovo

Introduction and Objectives: We represent the treatment of urolithiasis with ureteroscopic lithotripsy in our Clinic, during the period 2009 – 2013, through rigid URS.

Materials and Methods: The material is taken from the protocol of the Urologic Clinic in UCCK. During these five years although lacking the basic material such as: the lithotripsy probe, breaking the ureteroscopic light, with many interruptions in working process for months and even years, we have performed 118 ureteroscopic lithotripsies. In the analyses has been included: the gender, the attacked side, ordination of tamsulosine, and applying of ureteral stents (double “J”) and the period of stone cleaning.

Results: We have analyzed the ureteroscopic lithotripsies which were performed inside these five years (2009- 2013 in our Clinic). Of these 118 cases, 56 or 47.45% were males; 62 or 52.54% were females; the right side was attacked in 56 cases or 47.45%; the urolithiasis in the left side was found in 44 cases or 37.28%; meanwhile the urolithiasis in both sides was found in 8 cases or 6.77%. We have also analyzed the stenting of the ureters (double “J”) and through our analyses we have found that the routine application of stents is not preferred and is even harmful (taking more time to eliminate the crushed particles of stones), and also “re intervention” for removing them later.

Conclusions: We can conclude that ureteroscopic lithotripsy is a preferred choice for treating ureteroliths sized until 1 cm, especially those located in the middle and lower part of the ureter. From our analyses we can conclude that the broken ureteroliths can be eliminated easier and faster in females compared to males (shorter urethra?), there is no need for routine application of ureteral stents (double “J”) and the ordination of Tamsulosine facilitates elimination of microliths and pain during this elimination. The average cleaning period from stones is also analyzed. It results to last somewhat longer in males, 21 days, compared to 17 days lasting in females. The sample of patients using Tamsulosine and those not using Tamsulosine is also analyzed. Patients using 0.4 mg Tamsulosine once daily have a lower time of elimination (14 days) and complain less about pain.

UP595

Evaluation of the Results of Dornier Compact Sigma Machine in the Treatment of Renal Calculi

Mahmoud M, Abdelazim A, Abozaid H, Abdellatif A

Al Azhar University Hospitals, Cairo, Egypt

Introduction and Objectives: The aim of this work is to evaluate the results of the Dornier Compact Sigma Machine in the treatment of patients having renal calculi.

Materials and Methods: This study includes 145 patients having renal stones who are candidates for ESWL were treated at Al Hussein University Hospital, from August 2010, including 90 males and 55 females, ranging in age from 2 years to 68 years old (mean age: 37.3 years).

Results: The overall success rate was 85.5%. The stone-free rate for stones of < 10 mm was 100%, for 11–20 mm was 92.2% and for > 20 mm was 45.5%. The stone-free rates for lower, upper, middle calyceal and renal pelvic calculi were 72.3%, 84.6%, 90.9% and 93.7%, respectively. Post SWL Complications, renal colic, transient gross haematuria lasting 24 hours or less and steinstrasse in (4%) of cases.

Conclusions: The size, position, and density of calculi had a significant impact on the outcome after SWL. Significant stone clearance was achieved in patients with pelvic stone (less than 20 mm). Dornier Compact Sigma Machine system is one of the effective means of stone disintegration.

UP596

Evaluation of the Results of Dornier Lithotripter S II System in the Treatment of Renal Calculi

Mahmoud M, Ramadan M, Mabrok M, Gomaa A, Helaly I

Al Azhar University Hospitals, Cairo, Egypt

Introduction and Objectives: The aim of work is to evaluate the efficacy and safety of a third generation lithotripter (Dornier lithotripter S II system) in the treatment of renal calculi.

Materials and Methods: One hundred patients having renal stones who are candidates for SWL were treated at Bab El-Sha'rya University Hospital, from April 2010 to March 2011, they were 54 males and 46 females, ranging in age from 2.5 years to 67 years old (mean age: 40.2 years).

Results: The initial fragmentation rate was 96%. The stone-free rate for stones < 10 mm was 100%, for stones 11-20 mm was 87.6% and 75% for those having renal stones > 20 mm. The overall stone-free rate 3 months after lithotripsy was 87%. After single session of lithotripsy, 48 patients (48%) were stone-free. To render patients stone-free after lithotripsy, PNL were needed in only 6 cases (6%). The stone-free rates for lower, upper, middle calyceal and renal pelvic calculi were 84%, 83.3%, 85.7% and 88.7%, respectively. Post SWL Complications, included renal colic in (42%), Transient gross hematuria lasting 24 hours or less occurred in (33%); steinstrasse in (4%) of cases.

Conclusions: The size, position, and number of calculi have a significant impact on the outcome after SWL. Significant stone clearance

was achieved in patients having single pelvic stone (10-20 mm). Dornier lithotripter S II system is one of the effective and safe means of treating renal stones.

UP597

A New Convenient Technique for Anterograde Insertion of Double-J Stent in Laparoscopic Ureterolithotomy

Oh B¹, Kim J², Yoo D², Kim M³, Lim D⁴, Jeong H⁵, Park S², Noh J²

¹Dept. of Urology, Gwangju Veterans Hospital, Gwangju, South Korea; ²Dept. of Urology, Kwangju Christian Hospital, Gwangju, South Korea; ³Dept. of Urology, Chonbuk National University Medical School, Jeonju, South Korea; ⁴Dept. of Urology, Chosun University School of Medicine, Gwangju, South Korea; ⁵Dept. of Urology, Wonkwang University School of Medicine, Iksan, South Korea

Introduction and Objectives: Stenting after laparoscopic ureterolithotomy is difficult because of the curls and pliability of the double-J stent. Anterograde placement of the double-J stent during laparoscopic ureterolithotomy is technically, demanding and time consuming. We report a new method to anterograde insertion of double-J stent made of two modified guidewires before the operation and compare the method with the other methods introduced in the literature.

Materials and Methods: We conducted a retrospective study between March 2009 and September 2013 on 54 patients who underwent laparoscopic ureterolithotomy. All patients were operated on using the new technique of stenting the ureter during laparoscopic ureterolithotomy by modifying the guidewire. To make the procedure easier, we have devised a double-J stent, closed at both ends. For this procedure, two guidewires have to be used. We measure the distance from the urinary bladder to the stone by abdomen CT and also measure the distance from the renal pelvis to the stone. Then, we mark the location of the sidehole of the double-J stent for guidewire insertion by the length that we measured previously. We measure the length from the upper end of the stent to the sidehole and again measure the length from the lower end of the stent to the sidehole which was already marked. We cut the guidewire 5cm longer than the length of the previous measurement from the soft tips of the guidewire with scissors. The guidewire is passed from the sideholes in the stent, leaving about 5cm of the wire outside the stent lumen. This guidewire makes the stent taut so that it is easily negotiated up and down the ureter. The straightened stent on the guidewire is passed in the retroperitoneal space through a 5-mm port. Holding the distal end of the double-J stent, we push it in distally. The other end of the double-J stent is pushed in proximally following the same procedure. The stent is fully placed into the ureter by anticlockwise rotation.

The guidewire is pulled out with a grasper after insertion of stent, and the two ends of the stent coil up in the bladder and the kidney.

Results: All retroperitoneal laparoscopic ureterolithotomies were performed successfully without any complications. The mean stone size was 28 mm (range 16-51) and the stones were located in the upper ureter in all 54 patients. The mean operative time was 68.1 min (range 53-116). The mean time required for anterograde insertion of the stent was 3.48 min (range 2.11-6.08) and postoperative drain removal days were 1.8 days (range 1-3) respectively. The mean postoperative hospital stay was 4.8 days (range 3-8). The mean postoperative time to stent removal was 3.1 weeks (range 2-5). The stent was correctly placed in all cases in less than 4 minutes without any difficulty even if it was the first time. Using this technique, the operating time was markedly shorter than other method described in the literature.

Conclusions: Our new technique, during laparoscopic ureterolithotomy is easier, safer and saves precious time.

UP599

Percutaneous Nephrolithotomy in Patients with Solitary Kidney

Guliev B, Komyakov B

Mechnikov's Medical University, St-Petersburg, Russia

Introduction and Objectives: To evaluate the safety and efficacy of percutaneous nephrolithotomy (PCNL) in patients with solitary kidney.

Materials and Methods: From January 2006 to March 2013, 32 patients with solitary kidney (congenital in 4 (12.5%) patients, contralateral nephrectomy in 12 (37.5%) patients and non-functional kidney in 16 (50.0%) patients) underwent PCNL. We evaluated patient's age, sex, stones (size, number), intra and postoperative complications, preoperative and postoperative renal function. Creatinine clearance was estimated using formula of Cockcroft and Gault. Patients were followed at 1-2 weeks, 1 month and then 3 monthly for evaluation of renal function.

Results: Mean age of the patients with solitary kidney was 49 years (range 26 – 74). Twenty two (68.7%) cases were male and 10 (31.3%) cases were female. Side of solitary kidney was right in 18 (56.2%) cases, and left in 14 (33.8%) cases. Mean stone size was 28.4 ± 11.2 mm. PCNL indications were stone size (> 20 mm) in 27 (84.4%) cases and failed SWL in 5 (15.6%) cases. Stone was simple in 20, complex in 8 and staghorn in 4 patients. Stone free rate was 84.3% (27/32). Serum creatinine decreased from 2.3 ± 0.8 mg/dl to 1.4 ± 0.6 mg/dl. Creatinine clearance improved from 46.8 ± 12.6 ml/min to 58.4 ± 20.6 ml/min. Complications occurred in 7 cases (21.8%) postoperatively: fever in 2 cases (6.2%), urinary leakage in 2 cases

(6.2%) and blood transfusion in 3 cases (9.4%).

Conclusions: PCNL in patients with solitary kidney is technically feasible and an effective method for stone treatment.

UP.600

Change of Practice from Prone Position Fluoroscopy Guided Access Percutaneous Nephrolithotomy to Modified Supine Position and Combined Fluoroscopy and Ultrasound Guided Access

Mahrous A, ElMussareh M, Lloyd S
St James's University Hospital, Leeds, UK

Introduction and Objectives: Since 2011 we changed the practice of percutaneous nephrolithotomy (PCNL) in our unit to exclusive modified supine position using both fluoroscopy and ultrasound to guide the access. The aim of this study is to evaluate the results of this change of practice and to compare the results with the results of a previous audit of prone fluoroscopy guided PCNL.

Materials and Methods: Between September 2011 and November 2013, 33 patients underwent 43 PCNL (10 patients had a second look procedure). All procedure was done by a single surgeon. Thirteen patients had staghorn calculi. Twenty patients had large pelvic and/or calyceal stones with a mean stone size of 2.9 cm (1.8-6 cm).

Results: The modified supine position allowed simultaneous access to the kidney with flexible ureterorenoscopy in 13 patients 39.3%; 48.5% of patients were ASA score 3 or 4.

Conclusion: Modified supine PCNL using combined fluoroscopic/ultrasound guidance is a safe and effective technique. Using this technique adds the advantage of shorter operative time and may be more suitable for higher anaesthetic risk patients.

UP.601

Flexible Ureterscopy for Upper Urinary Tract Calculi in Children

Wu Y, Zou X, Zhang G, Yuan Y, Xiao R
First Affiliated Hospital of Gannan Medical University, Ganzhou, China

Introduction and Objectives: To evaluate the value of flexible ureteroscopy for the treatment of the upper urinary tract calculi in children.

Materials and Methods: There were a total of 26 children including 15 males and 11 females in this study. The median age was 7.2 (range 2.3 to 16) years. Among them, 14 had upper ureteral calculi (12 with calculi in situ, 2 with middle/fistal ureteral calculi shifting to upper ureteral after rigid ureteroscopic lithotripsy) and 12 had renal calculi. Ipsilateral mild to moderate hydronephrosis was found in all of the cases. Four children had melamine-induced stones (3 with upper ureteral calculi and 1 with renal calculi). The calculi were found on the left side in 15 cases, on the right side in 8, and

UP.600, Table 1. Results of Modified Supine position PCNL compared to results of an audit of previous practice

| | Prone position fluoroscopy guided PCNL Feb 2010-May 2011 | Modified Supine, combined fluoroscopic/ultrasound guidance PCNL Sep 2011-Nov 2013 |
|---------------------------|--|--|
| No. of patients | 24 | 33 |
| Staghorn calculi | 10 (41%) | 13 (39.3%) |
| 2 nd look PCNL | 3 | 10 |
| Mean operative time | 99.7 min | 78.5 min |
| Supracostal puncture | 2 | 1 |
| Need for second puncture | 2 | 1 |
| Stone free rate | 66.6% | 66.6% |
| Blood transfusion | 2 | 0 |
| Complications | 1 pneumothorax 1 failed access 1 continuous urine leak | 0 |

on both sides in 3 (upper ureteral calculi). The median stone size was 1.0 (range 0.6 to 1.5) cm. Retrograde flexible ureteroscopy and antegrade flexible ureteroscopy in mini-percutaneous nephrolithotomy was performed.

Results: Retrograde flexible ureteroscopic procedure was performed in 23 cases. One case was converted to mini-percutaneous nephrolithotomy because the flexible ureteroscope could not be inserted into the upper ureter. The flexible ureteral access sheath failed to insert into the upper ureter in 2 cases, and the flexible ureteroscope was inserted into ureter directly. The stones were successfully fragmented after two stages in these two cases. The successful rate of stone search was 100% in 22 cases. Twenty cases were successfully performed in one stage. The success rate of stone fragmentation was 90.9% with the holmium laser lithotripsy. Three antegrade flexible ureteroscopy with mini-percutaneous nephrolithotomy were successfully performed, and the stones were successfully found and fragmented after a single holmium laser lithotripsy. The median operative time was 35 (range 20 to 70) mins. There was no major perioperative complication. The patients were discharged from hospital after a median of 4.5 days (range 3 to 7). Double-J stent was removed after 2 to 4 weeks when no residual stones more than 2.0mm in size were found. No recurrent stones, no urethra stricture, no ureter stricture, no urinary incontinence and no vesicoureteral reflux were found during the 3 to 72-months follow-up.

Conclusion: Flexible ureteroscopy is a safe

and feasible method for the treatment of upper urinary tract calculi in children. It is suitable for the stones in the pelvis and calyces where the rigid ureteroscopy could not reach.

UP.604
Sheathless Approach in Intrarenal Endoscopic Laser Lithotripsy (RIRS): An Outcome Analysis of 43 Consecutive Patients
Hussain B, Chow W
Pennine Acute NHS Trust, Manchester, UK

Introduction and Objectives: Ureteral access sheath (UAS) induced ureteral wall injury during RIRS has been reported as high as 46.5%, ranging from superficial mucosal breaches (33%) to severe injury involving the muscle layer (13.5%). We present an outcome analysis of 43 consecutive patients who underwent RIRS without the deployment of a ureteral access sheath for access to the upper renal tract.

Materials and Methods: A total of 43 patients (F18:M25) with renal calculi were treated by RIRS with fibreoptic ureterorenoscope introduced by rail-roading using the 2-wire technique without an access sheath. Seventy percent were ESWL failures with 80% lower pole calyceal stones. Eighty percent were multiple stones and 26% pre-stented. Stone size ranges from 3 to 22mm (median 13mm) and varies from one to 7 stones. Fragmentation aiming at complete pulverisation was achieved by using a 273 micron fibre on the Odyssey (Cook Medical) 30 (Hol:YAG) system. Maximum energy (range 690-9800 Joules) was used for complete pulverization with the double pulse duration option.

Visual confirmation of any ureteral breaches was carried out on exit of the fibreoptic ureteroscope. Clearance was assessed on visual pulverisation, absence of fragment > 3mm during treatment, and 3-month follow-up imaging.

Results: Complete stone clearance was achieved in 40 patients after single treatment. One patient needed 2 treatments for a 22 mm stone and one had 3 sessions to clear seven stones. We failed to gain access in one patient with horse-shoe kidney. Treatment lasted between 45 to 80 minutes and all patients except one were discharged within 24 hours. Significant ureteral mucosal/submucosal breach, incidence of sepsis or significant haematuria was not observed.

Conclusions: In our current practice, the use of access sheath is not routinely required in RIRS for ureteral access and repetitive stone fragment retrieval from the upper renal tract, especially when stone pulverization and subsequent clearance is achieved by the effective and safe Odyssey 30 (Hol:YAG) system utilising the dual pulse duration option. The sheathless approach is safe, and routine ureteral pre-stenting is not mandatory. Ureteral wall injury has not been observed in this series.

UP.605
Ureteroscopic Lithotripsy Using Swiss Lithoclast
Hong Y¹, Lee S¹, Park D¹, Oh J²
¹CHA Bundang Medical School, Seongnam, South Korea; ²SNUBH, Seongnam, South Korea

Introduction and Objectives: We reviewed our ureteroscopic lithotripsy using pneumatic lithoclast (ULPL) performed for 14 years for the treatment of ureteral calculi to figure out factors affecting its success.

Materials and Methods: A total of 911 ureteric units of ULPL performed in 857 patients (13 to 81 years old) from 2000 to 2013 in a single hospital were retrospectively reviewed. Our hospital has never had any other types of lithotripter such as ultrasonic, electrohydraulic, laser, but pneumatic type. We used 9.5Fr or 10Fr semi-rigid ureteroscopes and Swiss Lithoclasts. Success was defined as being free of stone-related symptoms and residual stones larger than 3 mm.

Results: The overall success rate determined after 2 to 4 weeks of operation was 92.9%. The success rates were different according to the location of stone. The success rate of upper ureter stone was significantly lower than those of middle to lower ureter stones. The success rate of stones larger than 10mm in diameter was lower than stones smaller than 10mm. Hydronephrosis was another independent factor that affects success. The most common cause of failure was upward migration, followed by intraoperative complication of ureteral perforation.

Conclusion: Pneumatic lithotripsy with Swiss Lithoclast is an effective and safe treatment

UP.605, Table 1. Patient Demographics and Characteristics of Ureteric Calculi

| | Upper | Middle | Lower | Total |
|----------------------------|--------------------------|--------|-------|-------|
| Number | 143 | 176 | 592 | 911 |
| Male | 70 | 99 | 339 | 511 |
| Female | 72 | 75 | 253 | 400 |
| Stone diameter (mm) | 9.4 | 8.4 | 7.6 | 8.03 |
| Age (year) | Male: 46.5, Female: 53.6 | | | 49.6 |

with ureterorenoscopy, as well as facilitate the anesthetic operation, and reducing respiratory complications. The objective is to compare the effectiveness of both techniques in a complete resolution (0 residual stones) in the PCNL and assess secondary outcomes as intra and postoperative complications.

Materials and Methods: Retrospective analysis of 138 PCNL performed at our center between 2002 and 2013. Dependent variable: stone

UP.605, Table 2. Success Rates According to Stone Size and Location within the Ureter

| | Upper | Middle | Lower | Total | p-value |
|-------------------------------------|---------------|--------------|----------------|----------------|---------|
| No. of cases | 143 | 176 | 592 | 911 | |
| Success (%) | 116 (81.1) | 159 (90.3) | 571 (96.5) | 846 (92.9) | 0.015* |
| Failure (%) | 27 (18.8) | 17 (9.6) | 21 (3.5) | 65 (7.1) | |
| Migrated stones (%) | 23 (16.0) | 15 (8.5) | 18 (3.0) | 56 (6.1) | 0.038* |
| Perforation (%) | 4 (2.8) | 2 (1.1) | 3 (0.5) | 9 (1.0) | 0.742 |
| Success according to size | | | | | 0.025* |
| <5mm (%) | 4/5 (80.0) | 16/17 (94.1) | 118/121 (97.5) | 138/143 (96.5) | 0.591 |
| 5-10mm (%) | 25/28 (89.3) | 90/94 (95.7) | 429/445 (96.4) | 544/567 (95.9) | 0.326 |
| >10mm (%) | 87/110 (79.0) | 53/65 (81.5) | 24/26 (92.3) | 164/201 (81.6) | 0.039* |
| Success according to hydronephrosis | | | | | 0.009* |
| Mild | 29/35 (85.7) | 61/66 (92.4) | 498/515 (96.7) | 588/616 (95.4) | 0.231 |
| Moderate | 70/81 (87.6) | 72/78 (92.3) | 56/58 (96.5) | 198/217 (91.2) | 0.485 |
| Severe | 17/27 (62.9) | 26/32 (81.2) | 17/19 (89.5) | 60/78 (76.9) | 0.021* |

*, p < 0.05

modality for ureter stones. Its efficacy is reduced in case of large sized upper ureter stones with marked hydronephrosis because of higher chance of stone fragment migration during lithotripsy.

UP.608

Robot Assisted Laparoscopic Ureterolithotomy for Large Proximal Ureteral Stone

Hung S, Chung S, Wu W
FEMH, Taipei, Taiwan

Introduction and Objectives: This study aimed to evaluate the feasibility and report early outcomes of robot-assisted laparoscopic (RAL) transperitoneal ureterolithotomy.

Materials and Methods: From July 2012 until February 2014, nine patients, including 8 men and one woman, with a mean age of 50.2 years (range, 32-63 years), underwent RAL transperitoneal ureterolithotomy. All of the locations of stones were the proximal ureter. No patients had a history of previous abdominal surgery. RAL ureterolithotomy was performed via a transperitoneal approach. Complications and outcomes were also evaluated.

Results: Mean operation time was 163.3 minutes, and the mean console time was 93.4

minutes. The mean stone size was 2.7 cm (range, 2-3.8 cm) in length. There was no stone migration or conversion. All the ureteral stones were extracted laparoscopically. A double J stent was inserted antegradely during the procedure and remained for about 1 month in all cases. No visceral complication or blood transfusion occurred. The mean hospital stay and the drain installation interval were 6.3 days (range, 4-8 days) and 3.6 days (range, 3-5 days), respectively. Preoperative hydronephrosis resolved at follow-up ultrasonography (3 months later) in all patients.

Conclusion: RAL transperitoneal ureterolithotomy is a safe and effective procedure and a convenient option for patients.

UP.609

Percutaneous Nephrolithotomy: Which Is the Best Position? Comparison between Prone and Supine

Chavez Roa C, Resel Folkersma L, Ciappara Paniagua M, Parra Ayala F, Moreno Sierra J
Hospital Clinico San Carlos, Madrid, Spain

Introduction and Objectives: The change, from prone to supine position, in the percutaneous nephrolithotomy (PCNL) has offered 2 paths, allowing combine this technique

clearance rate. Statistical analysis: Comparison between PCNL prone and supine regarding intra and post surgical variables. Level of significance: a error <0.05.

Results: See Table 1.

Conclusions: The supine position in PCNL, present a trend towards better stone-free rate (p = 0.057), with less operative time and hospital stay (p <0.05). The total number of intraoperative complications was higher in supine, although neither these nor postoperative complications differed significantly.

UP.610

Mini-Percutaneous Nephrolithotomy in the Treatment of Adult Renal Nephrolithiasis: A Single Institution Experience

Miller S, Taylor A, Ahmad R, Lloyd J, Ratan H, Lemberger J, Scriven S
Nottingham City Hospital, Nottingham, UK

Introduction and Objectives: Minimally invasive PCNL (Mini-PCNL) was initially used in treating paediatric nephrolithiasis, but has since been used in adults. We present a large UK single institution series of Mini-PCNL, assessing the efficacy, safety and morbidity in

UP.609, Table 1.

| | Supine | Prone | Total | p |
|-------------------------------------|------------|------------|---------------|-------|
| N° Renal units | 97 (70.3%) | 41 (29.7%) | 138 | |
| Mean age in years | 52.99 | 50.9 | 52.32 (20-87) | |
| Range | (20-87) | (25-80) | | |
| Number tone | 1 | 1 | 1 | |
| Range | (1-6) | (1-5) | (1-6) | |
| Stone length mm median | 28.4mm | 28.0mm | 28.28mm | |
| Staghorn tone | 11.3% | 9.8% | 10.9% | |
| Operative time | 90min | 165min | 120min | 0.01 |
| Mean hospital stay days | 8 | 9.5 | 8 | 0.002 |
| Stone-free rate | 33% | 51% | 38.4% | 0.057 |
| Residual Stone mm | 3.67mm | 4.13mm | 3.8mm | 0.044 |
| Intraoperative complications | | | | |
| Perforation | 1 | 0 | 1 | ns |
| Hemorrhage | 1 | 0 | 1 | ns |
| No access | 3 | 2 | 5 | ns |
| Lost access | 4 | 0 | 4 | ns |
| Postoperative complications | | | | |
| Pain | 6.2% | 7.3% | 6.8% | 0.75 |
| Fever | 16.8% | 18.9% | 17.4% | 0.8 |
| Infection | 5.2% | 9.8% | 6.8% | 0.28 |
| Severe hematuria | 5.2% | 7.3% | 6.1% | 0.574 |
| Urinary fistula | 2.1% | 4.9% | 3.1% | 0.34 |
| Transfusion | 5.3% | 5.3% | 5.5% | 0.99 |
| Embolization | 1% | 5.3% | 2.3% | 0.14 |

comparison to standard PCNL.

Materials and Methods: Retrospective analysis of 116 patients undergoing Mini-PCNL between February 2009 and February 2013 was performed. Stone factors such as size and density were investigated regarding their influence on surgical outcome. A patient was considered stone free if no residual fragments were identified on post-procedure imaging. Unpaired t-test was used for statistical analysis of outcome based on stone size and density. A p-value of <0.05 was considered significant. Post-operative complications were graded according to the Clavien grading system. Results were compared with the Clinical Research Office of the Endourological Society Percutaneous Nephrolithotomy Global Study (2011).

Results: A total of 116 patients (60 male, 56 female) were studied, average age 53.2 years. Average operative time was 175 minutes, average length of stay 3.9 days. Fifty four (46.5%) patients were stone free, 56 (48.5%) had residual fragments and 6 (5%) had follow-up elsewhere. Twenty four patients (20.7%) required further procedures, namely extracorporeal shockwave lithotripsy (10 patients), ureteroscopy (9

patients) and additional PCNL (5 patients).

Overall, 79.4% patients were stone free, or had clinically insignificant fragments not requiring further treatment. Average stone size in patients who were stone free was 21.5mm, and 25.3mm in those with residual fragments (p=0.105).

Average stone density in stone-free patients was 841 Hounsfield Units (HU) and 970 HU in those not stone free (p=0.111). Stone density was not a significant influence on the need for a further procedure (p=0.397). Complications included blood transfusion in 3 patients (2.6%) whilst 18 (16%) patients had infectious complications (12.9% urinary sepsis, 2.6% wound infection and 1.7% chest infection), all Clavien grade 2.

Conclusions: Mini-PCNL in adults is a safe and effective alternative to standard PCNL. Mini-PCNL has similar stone re-treatment rates and lower incidence of blood transfusion. There is no adverse effect on stone clearance by stone size or density using Mini-PCNL in this series.

UP.611

Outcomes of Percutaneous Nephrolithotomy (PCNL) at Bedford Hospital

Alnajjar H, Williams C, Khan A, Chaudry A
Bedford Hospital NHS Trust, Bedford, UK

Introduction and Objectives: At Bedford Hospital NHS Trust, a percutaneous nephrolithotomy (PCNL) service was initiated in 2010 for patients with staghorn calculi, or in whom lithotripsy and flexible ureterorenoscopy with laser fragmentation had failed. The objective of this study was to analyse the outcomes of PCNL at Bedford Hospital.

Materials and Methods: A retrospective case series study of all patients undergoing PCNL at Bedford hospital between September 2010 and September 2013 was conducted. We collated data on patient characteristics, calculus characteristics, pre-operative assessment, imaging, renal tract access, stone extraction, renal tract drainage, complication rates and stone free rates.

Results: The study included 43 patients undergoing 46 procedures. The mean age was 52 years and mean BMI of 29. Twelve percent of the stones treated were staghorn and 29% were > 2 cm. All cases were prone PCNLs. In 98% of the cases a single tract was used. Puncture of the renal tract was performed exclusively by a single urological surgeon under fluoroscopic guidance. The median length of inpatient stay was 3 nights. Intra-operative and at follow-up stone free rates were 87% and 72% respectively. Complication rates were low; 4.3% of the patients required blood transfusion, 0% visceral injury, and 2.2% required intensive therapy unit admission. Only 1 case was abandoned due to heavy tract bleeding intra-operatively.

Conclusion: In Bedford PCNL is performed exclusively by an experienced surgeon under fluoroscopic guidance only, reflecting locally available skills and technology. The stone free rates are comparable to national rates. The rates of complications in our centre are comparable to both national and international rates. These data confirm the safety and efficacy of PCNL in our hospital.

UP.612

Ureteroscopy for Stone Disease in Obese Patients: No, Yes or Always?

Ishii H, Cook P, Somani B
University Hospital Southampton NHS Trust, Southampton, UK

Introduction and Objectives: Obesity is now a worldwide epidemic and stone disease is more common in this population. Management of stones is difficult due to the risks associated with anesthetic and surgical approaches. We wanted to see the outcomes of ureteroscopy for stone disease in obese patients from our university teaching hospital.

Materials and Methods: Data was analysed

retrospectively from a prospectively kept database between March 2012 and February 2014. All patients who underwent ureteroscopy and laser stone fragmentation (URSL) with a BMI >30 were included. Stone free status was determined by endoscopic stone clearance and/or a follow-up imaging in 3 months.

Results: Twenty-five patients had 27 URSL procedures for renal and/or ureteric stones (20 left sided, 4 right sided and 1 bilateral URSL). The male:female ratio was 14:11, with a mean age of 54 years (22 years to 79 years) and a mean BMI of 36 (range: 30-65). Eighteen patients presented with loin pain, six with UTI or urosepsis and 1 with haematuria. Five patients had positive urine culture pre-operatively (*E.coli*-3, *pseudomonas*-2). Detailed stone screening was done in 12 patients. The stone location was in the lower pole (n=7), PUJ (n=4), VUJ (n=3) and a combination of renal and ureteric stones in other patients. The stone number varied from 1 to 7 (mean 1.7) with a mean stone size of 9 mm (5-25 mm) and a combined stone size of 13 mm (5-60 mm). The mean operative time was 54 minutes (25-103 minutes) with 10 patients having a pre-operative stent *in situ* and an access sheath used in 12 patients. Twenty-four patients (96%) were stone free with 2 patients needing more than one procedure. The stone composition was uric acid (n=5), struvite (n=4) and calcium oxalate (n=10). Twelve procedures were done as a day case with a mean hospital stay of 0.8 days (0-7 days). One patient with a pre-operative *pseudomonas* urine culture needed iv antibiotics for a week and a second patient had an early stent removal for stent irritation. There were no other complications.

Conclusions: Ureteroscopy is a safe technique in obese patients with a good stone clearance and a low complication rate with a majority of patients discharged within 24 hours.

UP.613

Bilateral Simultaneous Ureteroscopy (BS-URS) for Stone Disease: Results from a University Teaching Hospital

Drake T, Ali A, Cook P, Harris M, Somani B
University Hospital Southampton NHS Trust, Southampton, UK

Introduction and Objectives: BS-URS for management of bilateral ureteric and/or renal stones can be challenging with a complication rate higher than staged URS. We analysed the outcomes and safety of BS-URS in our University teaching hospital.

Materials and Methods: Data on all patients undergoing BS-URS between May 2012 and October 2013 was collected including patient demographics, pre-operative assessment, stone characteristics and complications. Laser was used for fragmentation and where possible all fragments were actively retrieved. The follow-up

imaging modality was a combination of KUB, USS or CT-KUB.

Results: Nineteen patients (38 renal units) had 22 BS-URS procedures for proven or suspected stone disease of which 3 procedures were completion BS-URS. The mean age was 46 years (Male:Female-7:12). Pre-operatively 3 patients each had a positive urine culture and a stent *in situ*. Patient comorbidities included morbid obesity (n=1), advanced renal failure (n=1), spinal injury (n=1) and obesity associated with diabetes (n=3). BS-URS was done for bilateral renal stones (n=6), renal and/or ureteric stones (n=8) and bilateral ureteric stones (n=2). In the remaining 3 cases a unilateral diagnostic FURS for suspected renal stone was done with a contralateral URS for renal (n=2) or ureteric (n=1) stone. There were only 4 isolated (single) ureteric stones. The remaining stones were either in the PUJ or kidney or in multiple renal and/or ureteric locations. The mean bilateral stone burden was 21mm (range: 4-63 mm). Of the 22 procedures, an access sheath was used in 14 (64%) procedures. Our stone free rate (SFR) was 92% (35/38 renal units), with one being in an inaccessible location and 2 others opting for conservative management. A post-operative stent was inserted in all patients (n=15, bilateral; n=7, unilateral). A stone analysis showed calcium oxalate stone (n=10), calcium phosphate stone (n=2), cystine stone (n=2), uric acid stone (n=1) and a combination of magnesium ammonium phosphate with calcium phosphate stone (n=4). Seventeen procedures (77%) were done as day case procedures with a mean stay of 0.4 days (range: 0-5 days). Two patients had an early stent removal due to stent irritation. There were no major complications and one minor complication (post-operative pyelonephritis requiring with iv antibiotics).

Conclusions: BS-URS for stone disease is safe and feasible. Surgeons performing these procedures should monitor their outcomes.

UP.614

Holmium:YAG Laser Lithotripsy for Renal and Ureteric Stones in 401 Cases

Wadhwa V, Abraham R, Syed H
Heart of England NHS Foundation Trust, Birmingham, UK

Introduction and Objectives: We assessed the effectiveness and safety of Holmium:YAG laser lithotripsy for managing renal and ureteric stones in a single centre, single surgeon study.

Materials and Methods: Between September 2006 and September 2013, consecutive cases of ureteroscopy with holmium laser lithotripsy for treatment of stones detected by CT-KUB and IVU were reviewed. A 7.5/8.5Fr semirigid/flexible ureterorenoscope 230/365µm fibre was used. All patients received intravenous gentamicin on induction, followed by 48 hours of oral antibiotics. In addition, patients with a

ureteric stent received intravenous co-amoxiclav on induction.

Results: Over seven years, 401 cases were performed, which stratified by location involved: renal 138 (34%), proximal ureter 115 (29%) mid ureter 43 (11%), and distal ureter 103 (26%). SFR after single treatment by location was: renal 83% (115/138), proximal ureter 91% (105/115), mid ureter 95% (41/43), distal ureter 90% (93/103). Of stones ≤10mm in size, SFR after single treatment was 93% (293/315), whereas >10mm SFR after single treatment was 73% (59/81). Overall SFR after single treatment was 83% (332/401). Repeat ureteroscopic lasertripsy was required in 6.5% (26/401). Overall SFR after repeat lasertripsy was 89% (57/401). Further treatment modalities, including percutaneous nephrolithotomy and extracorporeal shock wave lithotripsy, were required in 10% (42/401). The median length of stay was 1 day. Overall complication rate was 2.3% (sepsis 1.0%, UTI 0.5%, LRTI 0.2%, prolonged haematuria 0.2%, urinary retention 0.2%, ureteric stricture 0.2%) with no major complications.

Conclusion: Holmium:YAG laser lithotripsy is an efficacious treatment for renal and ureteric stones. In these cases the majority of stones encountered were complex renal and upper ureteric calculi, but treated with satisfactory efficacy and low morbidity.

UP.615

The Effectiveness and Safety of Percutaneous Nephrolithotomy (PCNL) for Solitary Kidneys: A Single-Center Experience

Santok G, Abraham J
National Kidney and Transplant Institute, Quezon City, The Philippines

Introduction and Objectives: Percutaneous nephrolithotomy of stones in solitary functioning kidneys pose a significant challenge to the urologist. Complications such as bleeding, incomplete stone clearance, and possibly decline in renal function affect the decision to perform PCNL in these patients. The aim of this study was to evaluate the outcomes of percutaneous nephrolithotomy in patients with solitary kidneys.

Materials and Methods: Between January 2009 and December 2013, 31 patients with renal stones in solitary kidneys were treated with PCNL at the National Kidney and Transplant Institute. All stones were diagnosed using an unenhanced CT scan. The solitary functioning status of the kidney was congenital absence of the contralateral kidney in 7 (22%); opposite nephrectomy in 15 (48%); and nonfunctional contralateral kidneys in 9 (29%) as detected by nuclear scintigraphy. The serum creatinine and hemoglobin were monitored at regular intervals. The stones were classified using the Guy Stone Score while the complications were

analyzed using the Clavien-Dindo Grading System. The mean follow-up in months was 21.3 ± 12.26 (4-48).

Results: The male to female ratio is 1.2:1. According to the Guy Stone Score, the stones were Grade 1 in 54.8% (17/31), Grade 2 in 16.1% (5/31), Grade 3 in 6.4% (2/31) and Grade 4 in 22.5% patients, respectively. The stone-free status was determined with a postop CT scan. Complete stone clearance was achieved in 90.3% (28/31) after a single session of PCNL. The mean operative time was 151 ± 36.7 (90-230) minutes. According to the Clavien-Dindo Classification, 19 (59.3%) had no complication, 4 (12.9%) had Grade 1 (fever), 6 (19%) had Grade 2 (blood transfusion) and 1 (3%) had Grade 5 (postoperative hemodialysis, sepsis and death). The rest maintained stable or improved renal function without postoperative hemodialysis. The mean rise in serum creatinine was 0.67 ± 1.01 (0.1-3.5) mg/dL. Mean drop in hemoglobin was 1.6 ± 0.89 (0.5-3.8) gm/dL. **Conclusion:** PCNL is effective and safe for patients with nephrolithiasis in solitary kidneys. This minimally invasive procedure achieves a high stone clearance rate with acceptably low morbidity and mortality.

UP616

Comparison of Surgical Outcomes between Laparoscopic Pyelolithotomy and Percutaneous Nephrolithotomy in Patients with Multiple Renal Stones in Various Parts of the Pelvocalyceal System

Lee J¹, Cho S², Son H², Jeong H², Kim H³, Lee S²

¹Sanggye Paik Hospital, Inje University College of Medicine, Seoul, South Korea; ²SMG-SNU Boramae Medical Center, Seoul, South Korea;

³Seoul National University College of Medicine, Seoul, South Korea

Introduction and Objectives: To evaluate surgical outcomes of laparoscopic pyelolithotomy (LP) and percutaneous nephrolithotomy (PCNL) in managing multiple renal stones in various parts of the pelvocalyceal system.

Materials and Methods: From February 2004 to December 2011, 45 patients underwent LP and 39 underwent PCNL for treatment of pelvic stone(s) with calyceal stone(s). Differences in demographics, perioperative data, and complications were compared between LP and PCNL. The primary endpoint in this study was the stone-free rate in a single session.

Results: Stone-free rates were 91.1% and 64.1% in the LP and PCNL groups, respectively ($P = 0.003$). Mean operation time was longer in the LP group ($P < 0.001$). Mean change in hemoglobin level ($P < 0.001$) as well as postoperative analgesics usage ($P = 0.022$) was significantly better in the LP group. However, mean estimated blood loss ($P = 0.112$), mean change in creatinine ($P = 0.172$) and

estimated glomerular filtration rate ($P = 0.395$), and mean length of hospitalization ($P = 0.842$) were similar in both groups. The PCNL group had more overall complications.

Conclusion: LP was safer and more effective than PCNL according to our study. Therefore, LP may be a feasible modality in managing multiple complex renal stones in various parts of the pelvocalyceal system.

UP617

Miniperc: Outcome at MPUH

Kumar M, Bhattu A, Ganpule A, Mishra S, Vyas J, Jagtap J, Sabnis R, Desai M
Muljibhai Patel Urological Hospital,
Nadiad, India

Introduction and Objectives: Miniperc is percutaneous nephrolithotomy (PCNL) with access sheath smaller or equal to 20 Fr which is being used in adults for decreasing the morbidity of standard PCNL. The objective of this study is to analyze the outcomes of miniperc at our centre.

Materials and Methods: It is prospective study in which all the patients who underwent miniperc at our centre from June 2009 to January 2014 were enrolled. Inclusion criteria were stones smaller than or equal to 2.5 centimeter. Exclusion criteria were patients with active bleeding disorders, active urinary tract infections & pregnant patients. Patient demographics, stone characteristics, procedural details, complications, analgesic requirement, hemoglobin drop, hospital stay, stone clearance rate were analyzed.

Results: We performed 328 Minipercs from June 2009 to January 2014. Mean patient age was 41.4 ± 16.5 years. Mean stone size was 14.6 ± 3.2 millimeter. Number of stones in pelvis, upper calyx, middle calyx and lower calyx were 157, 27, 48 and 145 respectively. Procedure was tubeless in 128 patients. Mean haemoglobin drop, mean operative time, mean analgesic requirement, and mean hospital stay was 1.06 ± 0.4 grams/deciliter, 57.2 ± 14.8 minutes, 45.6 ± 34.8 milligrams of tramadol and 2.8 ± 0.5 days respectively. Complication included pelvic perforation in 1 patient, bleeding in 6 patients, perinephric collection in 5 patients; postoperative transient fever in 10 patients. Complete clearance was achieved in 322 (98.10%) patients.

Conclusion: Miniperc is safe alternative to conventional PCNL in intermediate size stones with better morbidity profile.

UP618

A Novel Technique for Ureteroscopic Extraction of Ureteric Stones

Musbah E¹, Musbah A²

¹Basildon Hospital, Basildon, UK; ²Al-Ahli Hospital, Doha, Qatar

Introduction and Objectives: Ureteric colic is an acute condition associated with pain and

often requires hospital admission. With the large number of cases of ureteric stones among young active patients in Doha, Qatar there is a high expectation for rapid functional recovery. Use of semi-flexible ureteroscopes and holmium laser has made the removal of ureteric stones atraumatic. This study reviews postoperative outcome and recovery time for 200 patients with ureteric stones that underwent a novel ureteroscopic technique in one of the largest hospital in the country between 2010 and 2012.

Methods and Materials: A total of 200 patients (172 men, 28 women) underwent this procedure with mean age 41 years (range: 22-65). Spiral CT was the diagnostic method. Mean stone size was 5.3mm (range: 3-16mm). The technique involves introducing the mini-rigid ureteroscope 6.5f with a loaded 0.35f flexible end guide wire at the beginning of the procedure. No prior cystoscopic examination, retrograde or any form of dilatation of the ureter was performed. Holmium laser was used to fragment the larger stones (>5mm). A 2.3 parachute basket is introduced to retrieve fragmented stones. A survey assessed patient satisfaction and recovery time.

Results: Complete stone clearance was achieved in 181 (91%) cases and partial clearance in 11 (5.5%) cases. Operation duration was short (mean: 17.5 mins, range: 3-54 mins). No case required dilatation or prior stenting. Of all the cases, 130 (65%) required having a ureteric stent with an attached suture that was removed within 48 hours. The time lapse to return to work was 4.4 days (range: 2-7 days). No major postoperative complications occurred except 2 (1%) patients developed small perforations that were resolved conservatively. There was no significant difference in the recovery time, post-op complications, and operation duration with the location of ureteric stone. Failure to reach upper ureteric stones was observed in 8 (4%) cases, requiring a double J-stent and ureterscopy ten days later.

Conclusion: The use of a mini-rigid ureteroscope with a loaded flexible end guide wire from the start of the procedure is a safe and efficient technique. It had minimal complications and a shorter recovery period, meeting patients' expectations.

UP619

Stimulation of Diuresis as Adjuvant of Extracorporeal Shock Wave Lithotripsy Treatment

Marques V, Castelo D, Tavares da Silva E, Rolo F, Mota A

Dept. of Urology and Renal Transplantation, Coimbra's Hospital and University Centre, Coimbra, Portugal

Introduction and Objectives: The treatment of urinary stones with extracorporeal shock wave lithotripsy (ESWL) may be complemented with

different adjuvant support measures. These measures can prevent residual lithiasis and new lithiasic formation. A good example consists in stimulation of diuresis during therapy sessions. The aim of this study is to assess the impact of use of diuretics in stone-free rate after ESWL.

Materials and Methods: A total of 447 patients underwent ESWL sessions during the year of 2011. The study group did intravenous furosemide (20 mg) previous to each session and the control group didn't do any previous medication. The stone-free rate after each session was recorded in both groups.

Results: The study group accounted with 362 patients (81%) and the control group accounted with 85 patients (19%). Univariate statistical analysis showed that the use of furosemide was associated with a superior stone-free rate ($p=0.001$). Multivariate analysis showed that independent predictors for a superior stone-free rate were: use of furosemide ($OR=2.94$, $CI=1.27$ to 6.80 , $p=0.012$), stone size ($OR=0.99$ $CI=0.89$ to 0.96 , $p<0.001$) and treatment potency ($OR=0.996$, $CI=0.99$ to 1.00 , $p=0.028$). Patient's age, stone laterality and location and other technical factors, such as the frequency and number of shocks didn't influence the stone-free rate.

Conclusion: Using furosemide during ESWL increases about 3 times the likelihood of obtaining a superior stone-free rate, in an independent way. Stimulation of diuresis before ESWL treatment is therefore an effective, safe and inexpensive adjuvant measure.

UP.620

FloSeal® Usefulness for Post PNL

Complication: Pilot Study

Kim W, Chung J, Min K, Kang D, Seo W, Kang P, Oh C, Park S, Kim S, Jung J, Yoon J
Inje University, Busan, South Korea

Introduction and Objectives: Percutaneous nephrolithotripsy (PNL) was the standard operation of large renal stone. Overall complication rate of PNL is 10%. The most common complications are persistent urine leakage and hematuria. So we compared the nephrostomy site urine leakage and hematuria rate using hemostatic matrix metal (FloSeal®) to reduce complication rate.

Materials and Methods: From January 2013 to August 2013, we prospectively randomized 26 PNL operation cases. We separated the group as simple suture group and FloSeal® group. And we compare OP finding, OP time and complication rate, post-operation stone analysis, etc.

Results: Mean operative time was 50.1 and 54.5 ($p=0.1$). Complication rate was 7 (53.8%), 3 (23.1%) ($p=0.03$). Especially in FloSeal® group, urine leakage rate was low. But hematuria rate was same in both groups as simple group (4 person), FloSeal® group (3 person).

Conclusion: In this Pilot study, we know the

UP.620, Table 1.

| | Simple suture group | FloSeal® group | p |
|--|---------------------|----------------|------|
| No pts | 13 | 13 | |
| Mean age (yrs) | 52.3 | 54.2 | 0.2 |
| Gender (F/M) | 8/5 | 5/8 | |
| Mean Stone burden (mm3) | 2257 | 4028 | 0.05 |
| Laterality (R/L) | 4/9 | 6/7 | |
| No. access | 1.1 | 1.1 | 0.2 |
| Operation time (min) | 50.4 | 54.5 | 0.1 |
| Mean fragmented stone size in per minute (mm3/min) | 44.8 | 73.9 | 0.01 |
| Stone free rate (%) | 100 | 92.3 | 0.02 |
| Hb drop (gr/DL) | 0.81±0.9 | 0.6±0.8 | 0.07 |
| Complications according to | | | |
| Clavien (%) | 7 (53.8) | 3 (23.1) | 0.03 |
| fever | 1 | 0 | |
| hematuria | 4 | 3 | |
| urine leakage | 2 | 0 | |
| Blood Transfusion (%) | 1 (7.7) | 1 (7.7) | 0.2 |
| Mean catheter removal (day) | 3.8 | 3.1 | 0.07 |
| Length of stay after OP (day) | 3.5 | 3.1 | 0.08 |

FloSeal® usefulness for reduction of urine leakage at the nephroscope site. But we need to further study.

UP.621

Safety and Efficacy of Ultrasound-Guided versus Fluoroscopy-Guided PCNL

Yam W, Lim S, Ng K, Ng F

Dept. of Urology, Changi General Hospital, Singapore

Introduction and Objectives: To compare the success rate and complication rate of ultrasound-guided versus conventional fluoroscopy-guided percutaneous nephrolithotomy (PCNL).

Materials and Methods: A total of 156 patients were identified in our PCNL database from July 2008 to September 2013. Every PCNL was performed in the prone position. Intraoperative ultrasound was used to demarcate and identify important surrounding structures e.g. lung, bowel, major blood vessels as well as to direct real time puncture of the preferred renal pole. Following US guided access into the pelvicalyceal system, the rest of the PCNL procedure was guided by fluoroscopy. For the fluoroscopy guided access into the collecting system, fluoroscopic imaging was used throughout the entire PCNL procedure.

Results: There are 53 ultrasound-guided PCNL (US-PCNL) versus 103 fluoroscopy-guided PCNL (F-PCNL). The patients are comparable in age, gender, race and ASA score. There is no statistical significance in the largest stone diameter, 28.5 ± 0.1 cm in US-PCNL vs. 31.4 ± 0.1 cm in F-PCNL ($p=0.167$). US-PCNL is associated with higher rates of upper pole (7.6%), mid pole (11.2%) and multiple pole puncture (3.8%) compared to F-PCNL of 3.9%, 1.9%

and 0% respectively ($p=0.008$). US-PCNL has better stone free rate (43.4%) than that of F-PCNL (34.0%) ($p=0.034$). US-PCNL also requires less additional procedures (19.9%) vs. F-PCNL (38.8%) ($p=0.029$). On multivariate analysis, p value of stone free rate is 0.400 while need for additional procedure remains statistically significant at $p=0.045$. Mean length of hospital stay is 3.0 ± 0.4 days in US-PCNL vs. 4.7 ± 0.6 days in F-PCNL ($p=0.020$). Multivariate analysis also showed statistical significant reduction of hospital stay with $p=0.010$. In terms of safety and complication, there is no clinical and statistical difference in blood loss as well as Clavien Dindo classified complications. **Conclusion:** We conclude that US-PCNL is a safe and effective approach. It is particularly useful when the renal stones are best accessed from the upper or mid pole, or when multiple punctures are required.

UP.622

Long-Term Follow-Up (>20 Years) of Single Agent Studies in Seminoma Patients

Oliver T, Summasundram U, Powles T, Shamash J

Barts Cancer Institute, QMUL, London, UK

Introduction and Objectives: Seminoma is the least malignant subtype of testicular germ cell cancer and has the least risk of metastasis at presentation. Less established compared with its radio-sensitivity, is the fact that it is more chemo-sensitive than non-seminoma. Despite reporting single agent Platinum data in 1982 which supported this concept most standards of care do not treat seminoma differently from non-seminoma. This abstract reviews personal series some with more than 30 years follow-up to

support this concept and suggests future International Collaborative studies worth pursuing.

Materials and Methods: A total of 119 metastatic seminoma (19 cisplatin, 91 Carboplatin and 45 BEP) treated 1980-2006, 176 Stage 1 cases receiving either 1 or two courses of adjuvant therapy treated 1985-2006 and 54 cases receiving chemotherapy as part of testis conservation (12 single agent Platinum and 42 BEP therapy) treated between 1978 and 2006. Prior to 1996 participation was through verbal informed consent and since this time ethical committee approval has been obtained for the ongoing studies.

Results: Overall 96% (43/45) metastatic seminoma treated with BEP are currently alive, while 96% (105/110) treated with single agent platinum while relapse rates are 4% and 10% (median follow-up 80 months). For stage 1 patients, 98% (172/176) are relapse free while 97% (171/176) with a median of 108 months. Forty two percent 5/12 receiving single agent platinum for tumor in solitary testis compared with 43% (18/42) have conserved their testicle at a median 132 months.

Conclusion: While in pimum non noce does not trump the Sword of Damocles, these results provide justification for further prospective evaluation of the less toxic option in patient preference studies. A further 5 years follow-up will be available by the time of late breaking abstract deadline.

UP.623

Laparoscopic Retroperitoneal Lymph

Node Dissection for Paratesticular

Rhabdomyosarcoma in Children

Mudegoudra A, Nerli R, Patil S, Guntaka A
Dept. of Urology, KLES Kidney Foundation, KLE University's JN Medical College, Belgaum, India

Introduction and Objectives: Paratesticular rhabdomyosarcomas usually present with an enlarging painless scrotal mass. A majority of patients will have clinical stage 1 disease. The most common sites of metastases are the retroperitoneum and lungs. Patients with retroperitoneal metastases should undergo a modified unilateral nerve-sparing RPLND (Retroperitoneal lymph node dissection). The increased use of minimally invasive surgery has spread to RPLND. We report on our experience with Laparoscopic-RPLND in adolescents.

Materials and Methods: Children with Paratesticular rhabdomyosarcomas presenting to us formed the study group. Children underwent detailed evaluation and imaging. The surgical procedure of laparoscopic RPLND involved placement of three ports, one 12 mm periumbilical camera port and two 5 mm ports (one midline below the xiphoid and one midline above the pubis). The colon was medialised by incising along the white line of Toldt from the spleen up to the sigmoid colon exposing the

common iliac vessels bifurcation, the testicular vessels and the ureter. First, the spermatic cord was dissected out and taken down to the point of the previous orchiectomy. The ureter was dissected out from the nearby vessels to avoid ureteral injury. The peri-aortic tissue was then split to begin the dissection of the peri-aortic lymph nodes. Dissection was carried out from the renal vessels down to the bifurcation of the aorta. The common iliac, pericaaval and inter-aortocaval lymph nodes were dissected out.

Results: During the study period Jan 2013 to Dec 2013, three children with a mean age of 10.3 years underwent laparoscopic RPLND. The mean operative time was 363.3 mins and the mean blood loss was 40 cc. There were no major intra/postoperative complications. The mean hospital stay was 50 hrs.

Conclusions: The increased use of minimally invasive surgery has spread to RPLND. Laparoscopic RPLND for high-risk pediatric patients with PTRMS is a safe diagnostic and

therapeutic procedure with the benefit of rapid convalescence, enabling early commencement of adjuvant chemotherapy.

UP.624

Retroperitoneal Surgery for Residual Post-Chemotherapy and Recurrent Masses in Testicular Cancer

Scavuzzo A¹, Reynoso Noverón N², Martínez Cervera P¹, Santana Rios Z¹, **Jimenez-Rios M¹**

¹Dept. of Urology, Instituto Nacional De Cancerología, INCan, Mexico City, Mexico;

²Dept. of Epidemiology, INCan, Mexico City, Mexico

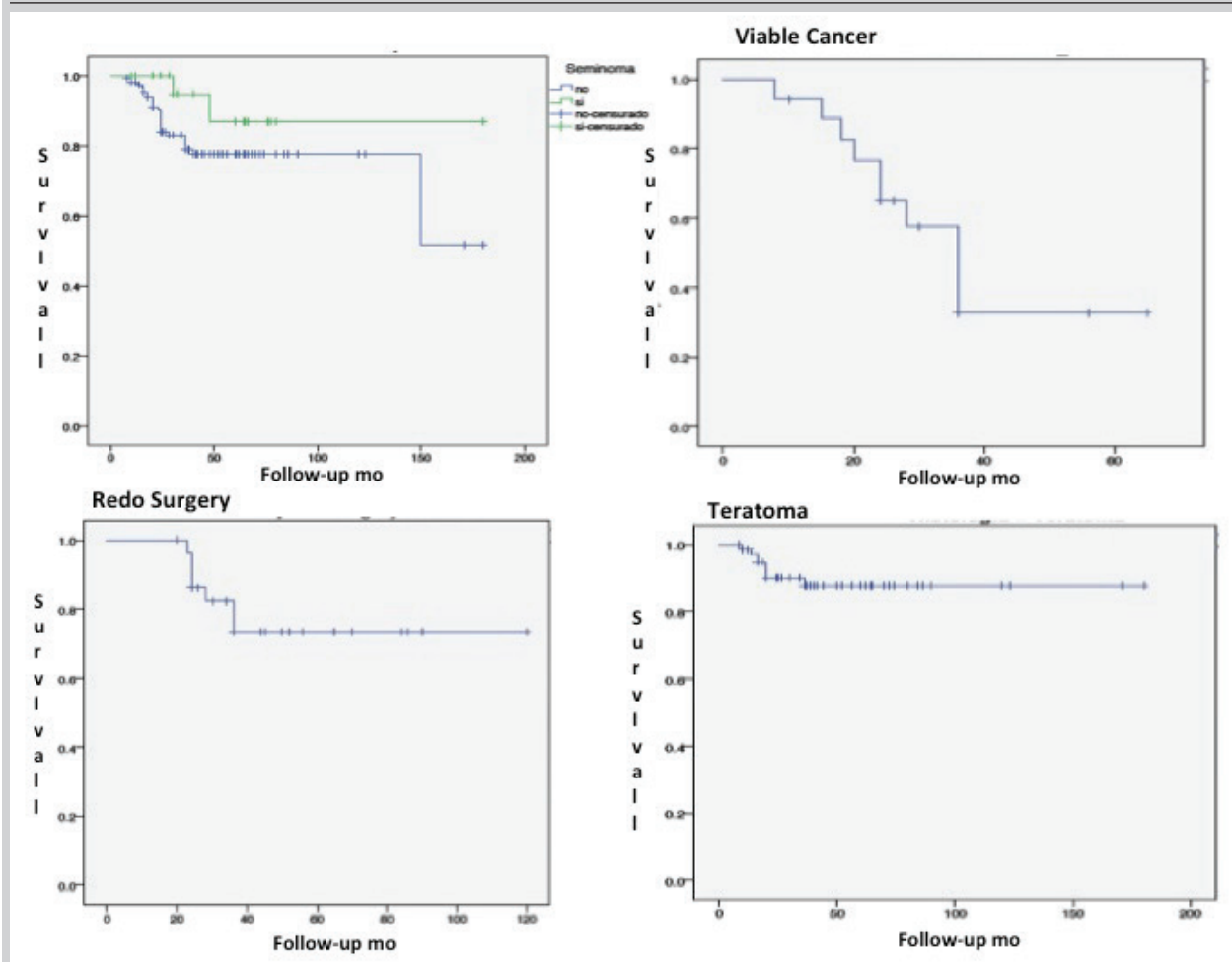
Introduction and Objectives: We report our experience in patients selected for post-chemotherapy retroperitoneal residual surgery (RRS) and in a subset of patients needing repeat retroperitoneal lymph node dissection (Redo).

Materials and Methods: We evaluated 181 men with residual retroperitoneal GCT between

UP.624, Table 1.

| Table 1 Pretreatment and treatment data | | |
|---|-------------------------|---------------|
| Parameter | No. of Patients (N=181) | |
| Age, years | 24.95 / 15- 52 | |
| Median /Range | | |
| Stage at diagnosis | | |
| I | 1 (6%) | |
| IA | 7 (3.9%) | |
| IB | 2 (1.1 %) | |
| IS | 2 (1.1%) | |
| II | 2 (1.1 %) | |
| IIA | 15 (8.3 %) | |
| IIB | 23 (12.7%) | |
| IIC | 30 (16.6 %) | |
| III | 2 (1.1%) | |
| IIIA | 15 (8.3 %) | |
| IIIB | 17 (9.4 %) | |
| IIIC | 63 (34.8%) | |
| (IGCCC) Risk Classification | | Died |
| Good | 71 (39.2%) | 8.5% |
| Intermediate | 61(33.7%) | 11.5% |
| Poor | 49(27.1%) | 36.7% |
| Induction chemotherapy | | |
| 3 cycles BEP | 54 (29.8%) | |
| 4 cycles BEP | 76(42%) | |
| 4 cycles EP | 2 (1%) | |
| CDDP + CFA | 3 (1.7%) | |
| Second line chemotherapy | 33 (18.2) | |
| Postchemotherapy diameter of the retroperitoneal mass | | |
| No evidence | 7 | |
| < 20 mm | 39 | |
| 20-50 mm | 46 | |
| > 50 mm | 89 | |
| Histology of RPLND | | Died |
| Embryonal carcinoma | 3 (1.7%) | 2 /3 (6.5%) |
| Teratoma | 78(43%) | 8/78 (25.8%) |
| Yolk sac tumour | 1 (.6%) | 1/1 (3.2%) |
| Tumours mixed | 13(7.2%) | 7/13 (22.6%) |
| Necrosis | 73(40.3%) | 12/73(38.7%) |
| Seminoma | 2 (1.1%) | 0 |
| Hiperplasia | 11(6.1%) | 1/11(3.2%) |
| Total | 181 | 31 |
| Histology of RPLND/recurrence | | |
| Teratoma | 20(25.6%) | |
| Necrosis/ Hiperplasia | 9(10.7%) | |
| Tumours mixed | 3(23%) | |
| Other histology | 4(66.7%) | |
| Histology of REDO surgery | | |
| Embryonal carcinoma | 2 | 1 |
| Yolk sac tumour | 2 | 2 |
| Sarcoma | 2 | 2 |

UP.624, Figure 1.



2007 and 2012. Data was obtained from prospective database. Statistical analysis was performed with SSPS20. Disease-specific mortality and specific survival was estimated using Kaplan-Meier starting from diagnosis.

Results: We performed 25 and 156 RRS in seminoma and NSGTT, of those, 30 Redo. Among seminoma: 15 good and 10 intermediate prognosis groups. Normal markers (93.4%) before RRS. Size residuals ranged from 0 to 20 cm. Viable tumours were 9.9% (n=18), teratoma 43.1% (n=78) and necrosis 40.3% (n=73). Of 78 teratoma, 33 belonged to the good prognosis group, 21 and 24 intermediate and poor. Complete resection obtained 85.6%; seventeen (9.4%) unresectable: 4, 6 and 7 of the good, intermediate and poor prognostic group. Thirty seven received adjuvant chemotherapy and 28 (15.5%) surgery for non-retroperitoneal metastases, 10 of 28 died. There were 36 (19.9%) retroperitoneal recurrences, among which 25% had teratoma in initial RRS. Histologies' relapse at the RRS as shown (Table 1). It was association between histology after PC-RRS and retroperitoneal recurrence (p.002). Among the

30 redo-RRS: 8, 9 and 13 good, intermediate and poor risk. Histology Redo: 7 viable tumors, 3 necrosis, 18 teratoma, 2 without tumors and 3 with histology different from the primary tumor and retroperitoneum. Follow-up was 42.6 months (8 to 180); 31 (17%) of the 181 died of disease. Ten of the 31 died (17.2%) with viable tumor. The 5-year probabilities of DSS were 90% and 79% for seminoma and NSGC. DSS for viable tumor in RRS and teratoma were 35% and 85% (Figure 1). DSM Redo was 23% (n=7) and DSS was 70%.

Conclusion: We demonstrated excellent clinical outcome for PC-RRS instead of standard RPLND. Current series shows that residual teratoma at PC-RRS has a risk of relapse; we think that, in residual teratoma, it requires to extend retroperitoneal lymph node dissection.

UP.625

25-Year Experience in the Treatment of Clinical Stage I Testicular Seminoma in Korean People

Kim T¹, Jeon T¹, Nam J², Park S², Shin D¹, Lee D², Lee Z¹, Chung M²

¹Pusan National University Hospital, Pusan, South Korea; ²Yangsan Pusan National University Hospital, Yangsan, South Korea

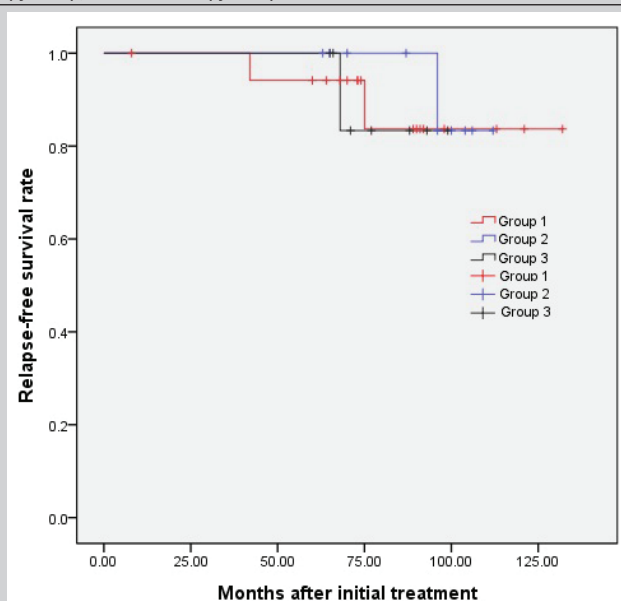
Introduction and Objectives: Patients with stage I seminoma of the testis may be managed by either surveillance or adjuvant treatment after orchiectomy. We analyzed the relationship between different therapeutic methods and the prognosis of this disease.

Materials and Methods: We retrospectively analyzed clinical data of 44 patients treated by multi-disciplinary approach among the 56 patients with clinical stage I seminoma, between 1984 and 2008. The patients were divided into 3 groups based on the treatment after orchiectomy: 24 patients under surveillance (Group 1), 11 treated with chemotherapy (Group 2) and 9 with radiotherapy (Group 3). The prognosis of different treatment groups was evaluated.

Results: Median follow-up time was 85 months (range, 8-132 months). Two patients in Group 1 (n=24), one in Group 2 (n=11) and one in Group 3 (n=9) relapsed respectively during follow-up period, and the site of relapse was all

UP.625, Table 1. Characteristics of Patients with Relapse

| No. | 1 | 2 | 3 | 4 |
|---------------------------|------------------------|--------------------|-----------------------|-----------------------|
| Treatment Group | Surveillance | Surveillance | Adjuvant chemotherapy | Adjuvant radiotherapy |
| Age (years) | 22 | 51 | 45 | 31 |
| Site of relapse | Lt. para-aortic LN | Rt. para-aortic LN | Lt. para-aortic LN | Rt. para-aortic LN |
| Subsequent relapses | Lung | No relapse | No relapse | No relapse |
| Time to relapse (months) | 42 | 75 | 96 | 68 |
| Survival | Died | Survived | Survived | Survived |
| Salvage therapy | Operation Chemotherapy | Chemotherapy | Chemotherapy | Chemotherapy |
| Follow-up Period (months) | 75 | 102 | 101 | 72 |

UP.625, Figure 1. Kaplan-Meier Relapse-Free Survival Curves of Patients in Surveillance Group, Chemotherapy Group, and Radiotherapy Group

para-aortic lymph node. All patients received salvage chemotherapy at relapse. Of the four patients with relapse, one suffered a secondary relapse at lung and eventually died from the disease (Table 1). The relapse-free survival at 5 and 10 years were 94.1% and 83.7% in Group 1, 100% and 83.3% in Group 2 and 100% and 83.3% in Group 3, respectively (Log Rank, $p=0.868$, Figure 1). The disease-specific survival at 10 years was 84.7% in Group 1, 100% in Group 2 and 100% Group 3 (Log Rank, $p=0.340$).

Conclusion: The prognosis of three different treatment group is satisfactory. But, this was a small-sized and single-center study, so there was a need for large-scale, randomized multicenter study.

UP.626

Clinical Impact of 2nd Line Chemotherapy Choice for Advanced Testicular Cancer

Patients with Salvage Chemotherapy

Nakamura T, Ueda T, Oishi M, Nakanishi H,

Kamoi K, Naya Y, Hongo F, Okihara K, Miki T
*Kyoto Prefectural University of Medicine,
Kyoto, Japan*

Introduction and Objectives: Twenty to 30% of patients with chemotherapy- refractory or resistant GCTs, so called 'difficult-to-treat' GCTs would remain continuously disease-free with salvage chemotherapy. Guidelines recommended paclitaxel-containing TIP therapy, VeIP, or high dose chemotherapy (HDCT) as 2nd line therapy. No definite 2nd line therapy has been revealed, such as BEP therapy. The aim of this study was to investigate the impact of 2nd line therapy choice on clinical outcome, retrospectively.

Materials and Methods: One hundred and forty one advanced GCT patients with salvage chemotherapy treated at Kyoto Prefectural University of Medicine from June 1998 to December 2012 were retrospectively assessed.

Results: Median age was 32 years (range: 17-65 years). Initial IGCCC showed good in 45

cases (31.9%), intermediate 34 (24.1%), poor 49 (34.8%), and unknown 13 (9.2%). As the 2nd line therapy, TIP/N therapy was done in 58 (41.2%), VIP/VeIP in 44 (31.2%), BEP/EP in 16 (11.3%), HDCT in 11 (7.8%), irinotecan-containing chemotherapy in 8 (5.7%), gemcitabine-containing therapy in 2 (1.4%), and others in 2 (1.4%), respectively. Four-year overall survival rate was 72.8% in TIP/N, 72.8% in VeIP/VIP, 68.8% in BEP/EP, 54.5% in HDCT, 87.5% in irinotecan-containing therapy, 50% in gemcitabine-containing therapy, and 0% in others, respectively. There was no significant difference between any of the groups, however, HDCT and others groups showed relatively poorer outcome.

Conclusion: TIP/N and VeIP/VIP would have been considered as equivocal effect as 2nd line therapy. The recommendation of guidelines could be acceptable in the real clinical field.

UP.627

Where Did We Lose Retroperitoneal Lymphadenectomy in CS1 NSGCTT?

Djozic J¹, Djovic S¹, Bogdanovic J¹, Sekulic V¹, Donat D², Zivojinov S¹, Djovic M³, Marusic G¹
¹Clinic of Urology, Novi Sad, Serbia; ²Institute of Oncology, Sremska Kamenica, Serbia; ³Clinic of Otorhinolaryngology, Novi Sad, Serbia

Introduction and Objectives: Three therapeutic options for Clinical Stage 1 Non Seminomatous Germ Cell Testicular Tumors (CS1NSGCTT) are established. Surveillance - low risk/high risk CS1NSGCTT - relapse rate 15-50%. Chemotherapy - high risk CS1NSGCTT - relapse rate 2-4%. Retroperitoneal lymphadenectomy (RPLND) - low/high risk CS1NSGCTT - cure rate over 85%. The most optimal therapy in this stage is not clearly defined. This study will show where we lost RPLND, comparing results before and after 2003.

Materials and Methods: From 1986-2013, 358 patients (pts) with testicular tumors were treated at our clinic: 216 from 1986-2002, 142 from 2003-2013. After semicastaration, pts with CS1NSGCTT underwent RPLND (before 2003), chemotherapy or surveillance.

RPLND was done at our clinic and chemotherapy at Institute of Oncology, Sremska Kamenica. After 2003, RPLND was done only in CS2 or CS3, after chemotherapy in case of enlarged lymph nodes (LN) > 1 cm. CS1 was treated only with two cycles of PEB. Surveillance was ruled out due to patients' in acceptance and cost effectiveness.

Results: From 1986-2002, 89 pts with CS1NSGCTT have been treated at our Clinic: 41, 45 and 3 pts received RPLND, 2 cycles of PEB and surveillance, respectively. In Group I – 19.5% (8/41) had positive LN, and 2 (3) cycles of PEB were prescribed. The follow-up survival rate was 100%, without relapse. In Group II and III – 2.2% (1/45) and 33.3% (1/3) developed enlarged RPLN in follow-up. In these groups, 2 additional PEB protocols were administrated. In period 2003-2013, 85 pts in CS2/3 underwent RPLND after chemotherapy and enlarged LN > 1 cm. Fifty seven pts with CS1NSGCTT were treated with only 2 cycles of PEB – relapse rate 3.5% (2 pts), survival 100%. RPLND was done in case of relapse (2 pts).

Conclusion: Chemotherapy with 2 cycles of PEB protocol showed excellent survival rate, small relapse percent, minimal toxicity. It was the reason for changing the protocol and ruling out RPLND from CS1NSGCTT as therapeutic option. However, we think there is still place for RPLND in this stage, especially today in case of laparoscopic/robotic surgery, respecting pts' wish in decision making process.

UP.628

Testis Sparing Surgery in the Treatment of Testicular Germ Cell Tumors

Bojanic N¹, Bumbasirevic U¹, Vukovic I¹, Bojanic G², Milojevic B¹, Nale D¹, Durutovic O¹, Djordjevic D¹, Vuksanovic A¹, Tulic C¹, Micić S¹

¹Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia; ²Urology Clinic "Dr Bojanic", Belgrade, Serbia

Introduction and Objectives: The aim of this study was to assess the oncologic and functional outcomes of testicular sparing surgery (TSS) based on a single institution experience.

Materials and Methods: From October 1996 to July 2013, 41 patients with bilateral testicular germ cell tumors (BTGCT) and 3 patients with solitary testicle tumors (STT) were referred our institution for further treatment. The inclusion criteria for TSS were normal serum testosterone levels before surgery, and tumor size. Preoperative evaluation of patients included physical examination, analysis of tumor markers and hormone status, scrotal ultrasound, abdominal CT, and lung X-ray. Sperm analysis was performed preoperatively and post-operatively. The surgical procedure consisted of testicular exploration via inguinal approach.

Tunica albuginea above the tumor was incised and the tumor was removed together with the surrounding apparently healthy tissue. Additional biopsies of surrounding tissue and distant regions were taken. Postoperatively follow-ups were performed once a month in the first year, every two months in the second year, every four months in the third year, and every six months thereafter. None of the patients underwent local radiation therapy following TSS for reasons of fertility preservation.

Results: Total of 26 TSS were performed in 21 in patients with BTGCT and 3 patients with STT, while re-do TSS was done in 2 patients. The mean follow-up period was 55.3 months. Seven patients developed local recurrence 4-60 months after TSS (mean 20.14 months), of which 5 had TIN and were subjected to radical orchiectomy, whereas re-do TSS was done in 2 patients after 8 and 12 months. The overall survival was 100%, and the presence of TIN was associated with worse recurrence-free survival ($P=0.031$, log-rank). During the follow-up testosterone values were normal in all of the patients, while spontaneous conception occurred in 2 patients, and another 2 achieved conception with assisted reproductive technique.

Conclusions: TSS is acceptable from an oncological point of view, and enables continuation of a patient's life without the need for lifelong hormonal substitution. Additionally, adjuvant local irradiation therapy could be delayed in patients with TIN, who wish to father children, but with high local recurrence rate.

UP.629

Pazopanib in Chemoresistant Patients with Germ Cell Tumors (GCT): Updated Results of the Open-Label, Single-Group, Phase 2 Pazotest-01 Trial

Necchi A, Giannatempo P, Nicolai N, Farè E, Raggi D, Marongiu M, Piva L, BIASONI D, Catanzaro M, Torelli T, Stagni S, Maffezzini M, Togliardi E, Salvioni R, De Braud F, Massimo Gianni A

Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

Introduction and Objectives: Patients (pts) with GCT who fail to be cured following multiple chemotherapy (CT) courses (\pm high-dose CT) have an extremely poor prognosis and long-term remissions are anecdotal. Pazopanib (PZP) is a potent and selective, orally available, TKI of VEGFR1, 2, and 3, PDGFR α , PDGFR β , and cKit. We updated the initial results of the ongoing open-label, single-group, phase 2 study which is sponsored by INT Milano (ClinicalTrials.gov NCT01743482).

Materials and Methods: Patients failing at least 2 platinum-based CT (including high-dose CT) received PZP 800 mg/day orally until disease progression (PD) or evidence of unacceptable toxicity/side effects. All pts underwent

measurement of serum tumor markers (STM), a computed tomography and a FDG-PET after 1 month and q2 months thereafter. In a Simon's 2-stage design, the primary endpoint is 3-month progression-free survival (PFS). In stage 1, 18 evaluable patients will be accrued. If ≥ 3 pts will be progression-free at 3 months, enrolment will be extended to the 2nd stage.

Results: From 06 to 12/2013, 9 patients have been enrolled, 6 in fourth and 3 in fifth-line. Median age was 38 years (IQR: 32-42). Eight were nonseminomas, 3 had a teratoma with malignant transformation, 3 had failed HDCT, 2 had liver metastases. Seven pts (77.8%) showed an early response after 4 weeks of treatment, and it was a marker \pm dimensional partial response (RECIST, PRm+). One had a stable disease, one a PD. In addition patients showed a densitometric response (N=3) or a reduction of FDG uptake (N=2). At +3 month restaging, 3 patients (33.3%) were progression-free. Two patients (22.2%) had G3 AST/ALT increase and needed temporary discontinuation of PZP. One case had G2 hypertension and diarrhea.

Conclusion: The study has already met the PFS requirements (3 progression-free patients at +3 months) to complete the full accrual of 43 patients. The activity of pazopanib was mainly seen as a reduction of STM, as expected. However responses were also seen in patients yielding divergent histologies. Additional considerations on non-conventional response (densitometric and metabolic) assessment will require more cases.

UP.630

Enhancing Risk Stratification in Primary Mediastinal Nonseminomatous Germ Cell Tumors (PMNSGCT): A 27-Year Experience at a Tertiary Cancer Center

Necchi A, Giannatempo P, Lo Vullo S, Farè E, Raggi D, Nicolai N, Piva L, BIASONI D, Torelli T, Catanzaro M, Stagni S, Maffezzini M, Scanagatta P, Massimo Gianni A, Mariani L, Salvioni R, Pastorino U

Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

Introduction and Objectives: Mediastinal GCTs and PMNSGCTs poorly benefit from CT and half of patients (pts) still die for disease. Enhancing the risk stratification may result in tailoring a personalized treatment strategy since diagnosis.

Materials and Methods: Between 1985 and 2012, 87 pts with primary mediastinal GCT were treated at our center. Of them, pure seminomatous histology was excluded. Multivariable analysis (MVA) of overall survival (OS) for baseline pre-specified factors included: type of 1st-line CT (high [HDCT] vs. conventional dose [CDCT]), post-CT surgery, type of elevated

serum tumor marker (STM) at baseline, presence of lung or liver-bone-brain metastases (LBB), and STM response (still elevated vs. normal or normalized). A separate MVA for operated pts only included preoperative STM, radicality, concomitant lung resection, and histology.

Results: The study included 68 cases with PMNSGCT. Median age was 28.5 years (IQR: 23-35). Twelve pts (17.7%) presented with mediastinal syndrome, 23 (33.8%) had lung and 7 (10.3%) LBB metastases. Twelve pts received upfront HDCT and 45 pts (66.2%) underwent post-CT surgery. The multivariable analysis for OS showed as significant risk factors no surgery (HR: 2.52, 95%CI, 1.00-6.34, $p=0.0496$) and presence of lung metastases (HR: 2.77, 95%CI, 1.11-6.94, $p=0.030$) (c -statistic=0.5996). A risk model with 0, 1 and both prognostic factors identified a distinct subset of pts with good prognosis ($n=22$, 5-year OS: 76.7%, 95%CI, 58.5-100, $p=0.018$). The only significant factor in the surgical cohort was histology of viable cancer (HR: 4.98, 95%CI, 1.05-23.68, $p=0.044$). Pre-operative STM and final histology were not associated ($p=0.574$ at Chi squared test). Five-year OS of operated STM+ ($n=13$) was 64.5% (95%CI, 41.3-100) and OS after receiving 2nd-line CT ($n=25$) was 18.7% (95%CI, 7.9-44.5). Results are limited by small numbers.

Conclusions: Selected patients with PMNS-GCT like those undergoing surgery and without lung metastases (22/68) had a fairly good prognosis. The add-on effect of surgery on survival was independent of post-CT STM, which also poorly predicted final histology. This model warrants confirmation.

UP.631

Nodulectomy as a Rationale Alternative to Radical Orchiectomy for Patients with Low Risk Testicular Sex Cord-Stromal Tumors

Necchi A, Nicolai N, Raggi D, Giannatempo P, Farè E, Piva L, Biasoni D, Catanzaro M, Torelli T, Stagni S, Paolini B, Colecchia M, Salvioni R *Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy*

Introduction and Objectives: Testicular sex cord stromal tumors (TSCST) are very rare neoplasms and limited information is available as regards the optimal therapeutic approach. We aimed to assess the clinical outcomes of a series from a single referral center.

Materials and Methods: We retrospectively identified patients who received treatment or post-surgical follow-up at our center. Testicular surgery was accompanied by retroperitoneal lymph-node dissection (RPLND) in some cases. Recognized clinical and histopathological features were collected, including histology, vascular invasion, presence of nuclear atypia, necrosis, elevated mytotic index, infiltrating margins, and tumor diameter. Clinical stage

and the presence of gynecomastia were also recorded. Kaplan Meier method was used to estimate the recurrence free survival (RFS) and cancer specific survival (CSS).

Results: From 12/1982 to 01/2013, 69 patients have been identified in our records. Median age was 44 (IQR: 32-50); 56 patients (81.2%) had a Leydig cell tumor, 12 (17.4%) a Sertoli cell tumor, and one case a TSCST undetermined. Four patients presented with gynecomastia. Fifty-two patients (75.4%) did not yield any histological risk feature, 8 (11.6%) one, and 9 (13%) two or more features. Thirty-one (44.9%) received tumor enucleation only while 38 (55.1%) a radical orchiectomy followed by RPLND in 7 cases. Of the former, 28 (90.3%) had no risk features, all of them had a clinical stage I disease. The median tumor diameter was 0.8 cm (IQR: 0.6-1.3) and 1.5 cm (0.9-3.1) in the two groups, respectively. After a median follow-up of 37.4 months (IQR: 12.6-82.9), six patients relapsed and three died, all in the orchiectomy group. Five-year RFS and CSS was 87.5% (95%CI, 73.9-94.3) and 90.6% (95%CI, 73.5-96.9), respectively. Results are biased by the retrospective and non comparative quality.

Conclusion: In this large retrospective series, we were able to observe that a testis-sparing surgery is a feasible and effective approach for patients presenting with TSCST and low risk features. This approach should be recommended in clinical practice.

UP.632

Laparoscopic Retroperitoneal Lymph Node Dissection after Chemotherapy: The Argentinean Community Hospital Experience

Vitagliano G¹, Rozanec J², Featherston M², Ameri C¹, Rios Pita H¹, Castilla R¹, Fernandez Long J¹

¹*Hospital Aleman, Buenos Aires, Argentina;*

²*Hospital Britanico, Buenos Aires, Argentina*

Introduction and Objectives: Residual masses secondary to chemotherapy for advanced germ cell tumors may warrant surgical removal.

Laparoscopic approach has previously been proposed in this setting. However, technical proficiency is mandatory and this procedure is usually reserved for high volume specialized centers. We report a two-center experience.

Materials and Methods: The records of the German and British Community Hospitals were analyzed. A total of 8 patients underwent laparoscopic retroperitoneal lymph node dissection (RPLND) after chemotherapy due to a residual retroperitoneal mass. Demographic, perioperative and oncologic data were analyzed.

Results: All patients received multiagent chemotherapy for clinical stage IIA disease. Patients underwent bilateral RPLND for a residual mass larger than 3 cm and in one case

for two 2 cm masses. Mean age was 30 years, mean ASA score was 1, mean operative time was 158 minutes (60 to 200 min), mean surgical bleeding was 70 ml (50 to 100 ml). There were neither intraoperative incidents nor the need for conversion. All patients evolved uneventfully and were discharged between postoperative day 1 and 3 with a mean hospital stay of 2 days. Mean lesion size was 5 cm (2 to 8 cm). Surgical margins were negative in 7 out of the 8 cases. The patient with a positive surgical margin had active disease in the final pathological specimen and died within the year. Out of the 7 remaining cases, 5 had remnant fibrosis and 2 had mature teratoma on final pathological analysis. Mean follow-up was 25 months (2 to 67 months).

Conclusions: Laparoscopic retroperitoneal lymph node dissection after chemotherapy is feasible and safe. This procedure is very challenging and not routinely performed, therefore it should be reserved for centers with a considerable laparoscopic experience.

UP.633

The Role of Primary Retroperitoneal Lymph Node Dissection for Stage I Non Seminomatous Germ Cell Testis Cancer: Is It Too Much?

Araujo L, de Oliveira A, da Silva A, Vanni A, Sala F, Schaal C, Costa R *Hospital Amaral Carvalho, Sao Paulo, Brazil*

Introduction and Objectives: The excellent survival of patients with non-seminomatous germ cell tumors (NSGCT) generates controversy regarding treatment in its early stages. The primary retroperitoneal lymphadenectomy (P-RPLND) remain as an integral component of the treatment, not only staging more accurately than the imaging methods, such as avoiding the side effects of chemotherapy. The objective of the study is to analyze the results of the P-RPLND for NSGCT in clinical stage I (CSI) and the risk factors for retroperitoneal metastasis.

Materials and Methods: Data were collected from 57 consecutive patients with NSGCT CSI treated with P-RPLND between January 1982 and April 2009. All patients were evaluated preoperatively with chest x-ray, testicular markers and CT of the abdomen and pelvis. An evaluation of patient characteristics and surgical complications while the presence of embryonal carcinoma > 40% (EC > 40%), angiolymphatic invasion (AL) and the presence of teratoma in the testis were correlated with lymph node metastasis.

Results: The median age was 29 (16-51) years. The median size of testicular tumor was 5.9 (1.4-17.0) cm. The average number of lymph nodes resected was 13.9. The median operative time was 78 (30-130) min. After the P-RPLND, 23/57 (40%) patients had lymph node metastasis. The presence of EC > 40% was found in 20/57 (35%) patients. AL was

observed in 9/57 (15.7%) and the presence of testicular teratoma was observed in 30/57 (52%). The presence of AL increased to 66.6% the risk of lymph node metastasis, whereas the presence of testicular teratoma increased from 3% to 13% probability of retroperitoneal teratoma. The presence of EC > 40% did not increase the risk of retroperitoneal metastasis. Postoperative complications occurred in 7% of patients, among retrograde ejaculation (2), lymphocele (1) and abscess (1).

Conclusions: The P-RPLND remains effective for diagnosing lymph node metastasis in patients with CSI NSGCT, besides presenting low complication rates. The risk of retroperitoneal disease increases significantly in the presence of AL. The testicular teratoma can be a predictor of retroperitoneal teratoma, histologic type with poor response to chemotherapy.

UP634

Post-Chemotherapy Retroperitoneal Lymph Node Dissection in the Management of Metastatic Testis Cancer: The 16-Year Experience in an Irish Setting
Considine S¹, Heaney R¹, Casey R², Thornhill J¹

¹Tallaght Hospital, Dublin, Ireland; ²Colchester Hospital, Colchester, UK

Introduction and Objectives: Post Chemotherapy Retroperitoneal Lymph Node Dissection (PC-RPLND) is an important tool in the management of advanced testis cancer, particularly Non Seminomatous. We present the 16-year experience with this surgery in a single Irish Tertiary Referral Center.

Materials and Methods: Patients undergoing PC-RPLND for metastatic testis cancer between January 1996 and December 2011 were included. Medical records were reviewed and up to date follow-up obtained from referral centres, patient's GPs and individual patient interview by phone.

Results: A total of 78 patients were identified for inclusion. The mean age at diagnosis was 29±7.7 years. Sixty three percent of patients suffered from NSGCT. All patients underwent pre-operative chemotherapy, of which 92% received BEP based regimes. The resection template utilised was bilateral in 28%, unilateral in 42% and suprahilar in 21%. Complete abdominal remission was achieved in 98%. Additional procedures were required in 43% of patients. Histology of RPLND specimen showed teratoma in 42% and active cancer in 13%. Median follow-up was 101 months. Seven patients relapsed, while overall 5 year survival was 95.2% (4 deaths).

Conclusions: We have shown comparable results and outcomes of PC RPLND compared to major international centres. Given the low numbers requiring this surgery in Ireland, we advocate a single centre of excellence be

established to ensure optimal patient outcomes.

UP635

Feasibility and Outcomes Regarding the Open and Laparoscopic Radical Prostatectomy after Previous Synthetic Mesh Hernia Repair: Meta-Analysis and Systematic Review of 7497 Patients

Picozzi S¹, Ricci C¹, Bonavina L², Bona D², Stubinski R¹, Macchi A¹, Ratti D¹, Marengi C¹, Bozzini G¹, Carmignani L¹

¹Dept. of Urology, IRCCS Policlinico San Donato, Milano, Italy; ²Dept. of General Surgery, IRCCS Policlinico San Donato, Milano, Italy

Introduction and Objectives: The purpose of this article is to contribute information to the interpretation of the feasibility and outcomes regarding the open, laparoscopic and robotic strategies of radical prostatectomy after previous synthetic mesh inguinal hernia repair.

Materials and Methods: A bibliographic search covering the period from January 1980 to September 2012 was conducted in PubMed, MEDLINE and EMBASE. Database searches yielded 28 references. This analysis is based on the eleven studies that fulfilled the predefined criteria.

Results: A total of 7497 patients were included. In the study group there were 462 patients. In five studies radical prostatectomy was performed by and open technique, in three by laparoscopy and in 3 by robotic. In the control group there were 7035 patients. The comparison of the open procedure performed in patients with a previous mesh-herniorrhaphy and controls shows that the number of lymph nodes removed resulted significantly lower and hospital stay with catheterization time result statistically longer. The comparison of the laparoscopic procedure doesn't show a statistically significant difference in terms of blood loss, operative time and catheterization time. The comparison of robotic prostatectomy could not be performed for the lack of data.

Conclusion: All patients need an adequate informed consent regarding the many aspect that could be influenced by the mesh such as the possibility of hernia recurrence, mesh infection, need for mesh explantation, possibility of mesh erosion into the bowel or bladder, bladder-neck contractures or postoperative urinary incontinence and a compromised nodal staging.

UP636

Urological Treatment for Syrian War Victims with Spinal Cord Injury

Glott T¹, Lahlouh M², Harrak A², Aljabri B³, Talseth T⁴, Stensrod G¹

¹Sunnaas Hospital, Nesodden, Norway; ²NORWAC, Oslo, Norway; ³Akershus University Hospital, Lørenskog, Norway; ⁴Oslo University Hospital, Oslo, Norway

Introduction and Objectives: The ongoing war in Syria has resulted in a significant

number of patients with injuries to the spinal cord or nerve roots. In most cases, the patients will experience a significant change in bladder, bowel and sexual function. The consequences of bladder dysfunctions may be life threatening if not treated in an appropriate manner. The objective is a Norwegian-Syrian collaboration to establish a clinic for Syrian victims.

Materials and Methods: Medical history and symptoms are recorded using ISCOS datasets translated into Arabic (*International Spinal Cord Injury Society*). Cystometry is done and interpreted according to the ISCOS dataset. Ultrasound is used imaging kidneys and bladder. By the end of March, 128 patients with spinal cord injury have been screened. Cystometry has been performed in 64 patients and 18 have had repeated examinations to assess efficacy of medical treatment.

Results: So far 55 patients have been trained to use intermittent catheterization in a total of 110 sessions, while 27 patients are still using indwelling catheter. Six patients have refused cystometry and 7 patients have been lost to follow-up. Five patients had a urethral obstruction. A total of 177 have been examined with ultrasound, and in 12 patients either kidney or bladder stones were revealed. These patients have been referred for further treatment. Urinary dysfunction has severe consequences for morbidity, mortality and quality of life. So far about 2/3 of the patients have been converted from indwelling catheters to a more safe technique of bladder emptying. Results from cystometry give information about risk factors, need for medication as well as deciding on preferred method and frequency of bladder emptying.

Conclusion: Providing modern equipment and training for Syrian doctors and nurses in spinal cord injury, has been an effective way to establish a specialized clinic. A significant proportion of the patients will have an improved bladder management that prevents future complications in the kidneys and urinary tract. In war zones there may be a significant delay of follow-up, and thus a risk for irreversible complications by the time of examination. Easy access specialized clinics may prevent such an outcome.

UP637

Adoption of the European Working Time Directive: Effects and Implications for Urology Training in Ireland

Considine S, Walsh A, Thomas A, Mc Dermott T, Lynch T, Manecksha R

St James's Hospital, Dublin, Ireland

Introduction and Objectives: The European Working Time Directive (EWTd) - 2003/88/EC - was transposed into Irish law by the European Communities (Organisation of Working Time) (Activities of Doctors in Training) Regulations 2004. However, to date there

has been minimal application of its principles to work practices in surgery. In the past year, following pressure from the European Commission, and industrial action by junior doctors, there has been renewed emphasis placed on the restructuring of rosters to align with EWTD requirements. Objectives: 1) To examine current working hours of Urology trainees in Ireland and assess adherence to EWTD. 2) To investigate how proposed strategies for adoption would aid in achieving compliance with Irish statutory requirements, while also safeguarding urological training.

Materials and Methods: Timesheets were reviewed from trainees on Higher Surgical Training and Basic Speciality Training in Urology. All urology training hospitals were included, with 2 trainees from each hospital (where applicable) assessed. Data recorded included weekly onsite hours (including on-call), off-site on-call hours and length of on-site shift.

Results: Timesheets from 15 trainees across 8 hospitals were reviewed. Mean weekly onsite working hours were 64.6 +/- 7.55. Median off site on call commitment was 16.375 hours (0 – 33.9). The average length of onsite shift was 12.47 +/- 2.36, falling just within directive limits. Mean weekly hours in excess of EWTD regulations were 16.585 +/- 7.56. The proposed quota of 6 “training hours” per week reduced this deviation to 10.58 +/- 7.56 hours. In all but two hospitals, on-call outside of working hours is provided on an off-site basis. Data was skewed by 2 hospitals with alternative on-call arrangements: one where the entire on-call shift is on-site and another where there is no out-of-working hours on-call cover.

Conclusion: The application of EWTD, even incorporating proposals such as dedicated training hours, will have a significant impact on the working practices of urology trainees in Ireland. It is imperative that we learn from the experiences of other countries, and ensure that the directive is adopted in such a way that we protect patient safety, but also safeguard the training of high quality urologists capable of independent practice.

UP.638

Performing a Pure Laparoscopic Right Heminephroureterectomy for Urothelial Carcinoma of Renal Pelvis in a Horseshoe Kidney

Ogasawara M¹, Iwabuchi I¹, Kawaguchi T¹, Tanaka T¹, Ohya C²

¹Aomori Prefectural Central Hospital, Aomori, Japan; ²Hiroshima University, Aomori, Japan

Introduction and Objectives: There are few reports about the pure laparoscopic nephroureterectomy for pelvic cancer in a horseshoe kidney. This report is about a case in which we performed a pure laparoscopic heminephroureterectomy.

Materials and Methods: Rotating the 3DCT angiography image indicated an artery was branching out from the inferior mesenteric artery to the horseshoe kidney. A pure laparoscopic right heminephroureterectomy was performed under general anesthesia. Four ports were setup in the right abdominal region as the patient lied in the left lateral position. Since the vicinity of the isthmus was not clear, it was set aside and we started with the right kidney's hilus to obtain its mobility. Performing an ultrasonography during surgery revealed a strong arterial blood flow in the planned dissection area for the Isthmus. After carefully inspecting the branching of the inferior mesenteric artery, branching to the isthmus was identified. The isthmus was cut with LigaSure, and a continuous Vicryl suture was performed on the cut off section.

Results: Operation time: 296 minutes. Amount of bleeding: 100 ml. The day after the operation the patient could walk. Pathology: Urothelial carcinoma, grade 2. A year after the surgery, no tumor was recognized by CT. 3DCT angiography and US during surgery was useful in identifying the arteries. The structure around isthmus of horseshoe kidney is very complicated, but after cutting vessels and obtaining mobility, dissecting the isthmus could be easily completed.

Conclusion: Identifying the aberrant vessels to the isthmus is the key to success of completing a pure laparoscopic heminephroureterectomy for renal pelvic cancer in a horseshoe kidney.

UP.641

Impact of Non-Muscle-Invasive Bladder Tumor History in Patients with Upper Urinary Tract Urothelial Carcinoma

Milojevic B, Djokic M, Kajmakovic B, Pejic T, Acimovic M, Milkovic B, Milenkovic Petronic D, Dzamic Z

Clinic of Urology, Clinical Center of Serbia, Belgrade, Serbia

Introduction and Objectives: To evaluate the prognostic factors for survival and disease recurrence in patients treated surgically for UTUC, focusing especially on the impact of history of non-muscle-invasive bladder cancer.

Materials and Methods: A single-center series of 221 consecutive patients who were treated surgically for UTUC was evaluated. Patients who had a history of bladder tumor at a higher stage than the upper tract disease, preoperative chemotherapy, or previous contralateral UTUC were excluded. In total, 183 patients (mean age 66 years, range 36–88) were then available for evaluation. Tumor multifocality was defined as the synchronous presence of 2 or more pathologically confirmed tumors in any upper urinary tract location. All patients were treated with either open radical nephroureterectomy (RNU) or open conservative surgery.

Recurrence-free probabilities and cancer-specific survival were estimated using the Kaplan-Meier method and Cox regression analyses.

Results: Fifty-one patients (28%) had previous carcinoma not invading bladder muscle. Previous history of non-muscle-invasive bladder cancer was significantly associated with tumor multifocality ($P = 0.001$), concomitant bladder cancer ($P = 0.001$), higher tumor stage ($P = 0.020$), and lymphovascular invasion ($P = 0.026$). Using univariable analyses, history of non-muscle-invasive bladder cancer was significantly associated with an increased risk of both any recurrence ($HR = 2.17$; $P = 0.003$) and bladder-only recurrence ($HR = 3.17$; $P = 0.001$). Previous carcinoma not invading bladder muscle ($HR = 2.58$; $P = 0.042$) was an independent predictor of bladder-only recurrence in multivariable analyses. Overall 5-year disease recurrence-free (any recurrence and bladder-only recurrence) survival rates were 66.7% and 77%, respectively. Using multivariate analysis, pT classification ($HR = 12.82$; 95% CI = 3.49–47.06; $P = 0.001$) and lymph node status ($HR = 6.02$, 95% CI = 1.81–19.97; $P = 0.003$) were the only independent predictors associated with worse cancer-specific survival.

Conclusions: Patients with previous history of non-muscle-invasive bladder cancer had a higher risk of having multifocal and UTUC with higher tumor stages. History of bladder tumor was an independent predictor of bladder cancer recurrence but had no effect on non-bladder recurrence, and cancer-specific survival in patients who underwent surgical treatment of UTUC.

UP.642

Ureteroscopic Management of Upper Tract Urothelial Carcinoma (UTUC) from a Single Centre

Wadhwa V, Abraham R, Syed H
Heart of England NHS Foundation Trust, Birmingham, UK

Introduction and Objectives: Endoscopic management of UTUC is increasingly practised, but there are few published studies. We evaluated the outcome of flexible ureterorenoscopy (FURS) for UTUC in a single centre by one surgeon.

Materials and Methods: Between January 2008 and October 2013, 41 UTUC patients underwent retrograde FURS for diagnostic biopsy, treatment (Holmium:YAG vaporisation) and follow-up.

Results: Median age was 74 years (range 45–93; 76% male, 24% female). Indications included multiple comorbidities (22%) and solitary kidney (5%). Median eGFR was 59 ml/min (range 29–90). Previous TCC bladder was documented in 51%. Presentation included: haematuria & CTU (49%), tumour/abnormal area around UO on cystoscopy (27%), CTU

findings alone (17%), loin pain & CTU (7%). Bilateral disease was seen in 2%, unilateral right (44%) and left (54%). Tumour involved renal pelvis/calycal (22%) and ureter (78%) (Of these: Prox 3%, Mid 25%, Distal 72%). Median tumour size was 10mm (range 4-30). Tumour biopsy stage was: pTa (59%), pT1 (12%), pT1CIS (7%) and insufficient for analysis (22%). Grade: G1 (41%), G2 (27%), G3 (10%) and insufficient for analysis (22%). Adjuvant MMC was given in 27% and BCG in 7%. Complications included urethral stricture (n=1) and haematuria (n=1). Over median follow-up of 31 months (m) (range 2-70), 24 Upper Tract (UT) recurrences occurred in 17 patients (41%); of these ipsilateral (88%) and contra-lateral (12%). Median (range) time to first (n=16) second (n=5), third (n=3) UT recurrence was 7m (3-18), 20m (12-30), 31m (13-43) respectively. UT recurrence rates stratified to grade: G1 (29%), G2 (22%), G3 (100%). Bladder recurrences were seen in 32%, median time 16m (8-43). Five patients required nephroureterectomy (two with Grade 2 and three with Grade 3 UTTC). Four patients died, 2 of metastatic TCC (5%).

Conclusion: FURS can be used in selected cases (low grade and stage) of UTUC with close surveillance.

UP.643

Preoperative Prediction of Cancer-Specific Mortality after Nephroureterectomy for Patients with Upper Urinary Tract Urothelial Carcinoma: Preoperative Multivariate Model Incorporating C-Reactive Protein

Saito K¹, Ishioka J¹, Fujii Y¹, Matsuoka Y¹, Numao N¹, Koga T², Ohtsuka Y³, Arisawa C⁴, Kamata S⁵, Nagahama K⁶, Morimoto S⁶, Tsujii T⁷, Kitahara S⁸, Noro A⁹, Goto S¹⁰, Kageyama Y¹¹, Yonese J¹², Kihara K¹

¹Dept. of Urology, Tokyo Medical and Dental University Graduate School, Tokyo, Japan; ²Dept. of Urology, Tokyo Metropolitan Cancer and Infectious Diseases Center Komagome Hospital, Tokyo, Japan; ³Dept. of Urology, Omori Red Cross Hospital, Tokyo, Japan; ⁴Dept. of Urology, Tobu Chiiiki Hospital, Tokyo, Japan; ⁵Dept. of Urology, Soka Municipal Hospital, Soka, Japan; ⁶Dept. of Urology, Kohnodai Hospital, Ichikawa, Japan; ⁷Dept. of Urology, Tsuchiura Kyodo General Hospital, Tsuchiura, Japan; ⁸Dept. of Urology, Tokyo Metropolitan Ohtsuka Hospital, Tokyo, Japan; ⁹Dept. of Urology, Tama Nanbu Chiiiki Hospital, Tokyo, Japan; ¹⁰Dept. of Urology, Saitama Red Cross Hospital, Saitama, Japan; ¹¹Dept. of Urology, Hamamatsu Medical Center, Hamamatsu, Japan; ¹²Dept. of Urology, Saitama Cancer Center, Ina, Japan; ¹²Dept. of Urology, The Cancer Institute Hospital of JFCR, Tokyo, Japan

Introduction and Objectives: Nephroureterectomy (NU) is the standard of care for upper

urinary tract urothelial carcinoma (UTUC). However, perioperative multimodal approaches are needed to improve the outcome. Neo-adjuvant systemic chemotherapy would be feasible because not all UTUC patients would be suitable for adjuvant treatment due to comorbidities and impaired renal function after NU. Preoperative estimation for an individual's probability of survival could lead to appropriate patient selection for the neoadjuvant treatment. We aimed to develop the preoperative multivariate model with C-reactive protein (CRP), which has been shown to have a significant prognostic factor, to predict the cancer-specific survival (CSS) for UTUC patients.

Materials and Methods: Among 1326 UTUC patients in our database, 1202 patients treated by NU without distant metastasis, whose all variables were available, constituted the current study cohort. Patients were randomly divided into two groups (training set: n = 801, validation set: n = 401). Along with CRP, preoperative variables were analyzed for the prognostic significance. Nomogram for CSS was developed based on the results of a COX proportional hazard model. Its efficacy and clinical usefulness were evaluated using c-index and decision curve analysis.

Results: The follow-up period was a median of 39 months, and during this period, 251 patients (21%) died of disease. Age, BMI, CRP, cT and nodal status were independent predictors of CSS in a preoperative multivariate model. CRP improved the predictive accuracy of the multivariate model to 71% from 69% in the training set. The predictive accuracy of the preoperative nomogram was 74% in the validation set. The calibration plots for the validation set indicated a well-balanced and evenly distributed prediction. The decision curve analyses showed that the nomogram with CRP showed a higher net benefit, compared to a nomogram without CRP.

Conclusions: The preoperative nomogram incorporating CRP showed good predictive accuracy for survival in patients with UTUC treated by NU. The nomogram could allow better patient selection in determining the feasibility of using a neoadjuvant approach.

UP.646

Our Experience of Orthotopic Bladder Substitution with Gastric Flap

Komyakov B, Fadeev V, Novikov A, Sergeev A North West Mechnikov's State Medical University, Saint Petersburg, Russia

Introduction and Objectives: We have evaluated long-term results of conventional and modified gastrectomy in cystectomy patients.

Materials and Methods: Between September 2002 and August 2012, 24 patients underwent bladder substitution with gastric flap after

cystectomy for bladder cancer, interstitial cystitis, severely contracted bladder and neurogenic bladder dysfunction. In 13 patients we have performed conventional Mitchell-Hauri gastrectomy and in 11 - modified intervention.

Results: Long-term complications included stricture of uretero-neobladder anastomosis with hydronephrosis in 3 (12.5%) patients, progression of chronic renal failure in 1 (4.2%) patient, clinically significant neobladder-ureteral reflux in 2 (8.3%) patient, hematuria-dysuria syndrome in 4 (16.7%) patients. Asymptomatic bacteriuria was noted only in 2 (8.3%) patient, average urine pH varied between 5.5 and 6.5. Continence rate was better in group of modified gastrectomy due to larger gastric flap used for bladder substitution. Day time continence 1 year after surgery was estimated as 69.2% (9 of 13) and 90.9% (10 of 11) in patients after conventional and modified gastrectomy respectively. Night time continence was not very high - 30.8% (4 of 13) and 54.5% (6 of 11) respectively. Urinary tract urodynamics was better after modified intervention compared with conventional surgery - neobladder capacity 456.5±52.5 ml vs. 388.6±33.6 ml, neobladder pressure during first sensation and max capacity were 15.5±2.2 cm H₂O and 38.5±8.8 cmH₂O vs. 19.3±2.8 cmH₂O and 43.6±5.2 cmH₂O. No significant difference was seen in residual volume and maximum flow rate between these two groups of patients. We observed neither any serious gastric peristalsis disturbances, nor significant electrolyte and acid base imbalance.

Conclusion: Gastrectomy is a promising intervention with an acceptable complication rate that could be successfully implemented in carefully selected patients and serve as a good alternative to ileal bladder substitution. Modified gastrectomy could provide adequate urine storage and evacuation with satisfactory continence life quality.

UP.647

Urinary Retention Is a Potential Pitfall in Postoperative Renal Function Care of Patients with Ileal Neobladder Reconstruction

Luo H, Chiang P

Chang Gung Medical Center, Kaohsiung, Taiwan

Introduction and Objectives: Radical cystectomy is indicated for high risk non-muscle invasive or muscle invasive bladder cancer. Ileal conduit diversion (ICD) is currently the most popular procedure for urinary diversion; however, ileal neobladder (INB) reconstruction is a possibility for well-selected patients wishing to preserve a normal body image after cystectomy. This study is to assess the change in glomerular filtration rate (GFR) in patients undergoing ileal-based urinary reconstruction and the impact of factors related to diversion or non-diversion on renal function.

Materials and Methods: From 2005 to 2011, 216 patients underwent radical cystectomy at our institution. Sixty-three and 6 patients were excluded owing to concurrent nephroureterectomy and ureterocutaneostomy urinary diversion respectively. Finally, 147 patients were enrolled and underwent radical cystectomy and bilateral ureteroileal urinary diversions. ICD was performed on 101 patients and INB on 46 patients, after radical cystectomy. GFR was assessed by the modified Modification of Diet in Renal Disease formula.

Results: Patients receiving either ICD or INB experienced similar survival outcomes. However, postoperative decrease in GFR was higher in the INB group ($p = 0.006$); deterioration of renal function was mainly attributed to urinary retention. Renal function outcomes were not different between the groups ($p = 0.122$) except for urinary retention, which was related to major medical events.

Conclusions: Postoperative GFR decrease was more frequent in patients undergoing INB, as urinary retention is a potential complication of INB reconstruction. Patients should be counseled preoperatively about this possibility. Postoperative residual urine should be monitored closely to avoid renal function deterioration.

UP.648

Evaluation of a New Technique for Continent Cutaneous Urinary Diversion: The Embedded Nipple Technique

Atta M, Hashad M, Elabbady A, Hegazy H
Alexandria University, Alexandria, Egypt

Introduction and Objectives: Cutaneous urinary diversion (CUD) is the subject of surgical innovation to achieve optimum continence. This study aims at evaluation of the feasibility and efficacy of a new technique for continent CUD: "The embedded nipple technique" (ENT).

Materials and Methods: A prospective study was conducted on 20 patients prepared for continent urinary diversion using ENT. Continence is provided by nipple valve mechanism derived from the tubular resistance of the ileal segment as well as a dynamic mechanism resulting from embedment within the reservoir wall. Stability of the nipple depends on: embedding the nipple into the anterior wall of the pouch, fixation of the efferent limb to the external oblique aponeurosis and fixation of the anterior wall of the pouch to the posterior rectus sheath. The embedded nipple provides a supported straight channel for easy catheterization or endoscopy. Postoperatively, patients underwent imaging and urodynamic evaluation. Continence status and quality of life were assessed using a designed questionnaire (selected from QLQ-C30 and EORTC QLQ-BLM30 models).

Results: Sixteen males (75%) and four females

(25%) underwent continent CUD using ENT. The main indication was diversion after radical cystectomy (75%). Postoperative period was uneventful. Mean postoperative follow-up time was 18.6 ± 7.05 months. Mean maximal pouch capacity was 385.5 ± 153.63 ml. The pouch pressure at maximal capacity was 31 ± 6.52 cm/H₂O. Max closure pressure of the efferent limb was 68.2 ± 11 cm/H₂O. Functional profile length of the efferent limb was 3.59 ± 1.29 cm. Continence (diurnal and nocturnal) was achieved in 95% of patients by clean intermittent catheterization. Re-operation was required for a single incontinent stoma (5%) due to a short nipple. Quality of life questionnaire showed improvement in areas related to catheter use, body image, social functions and daily activities.

Conclusion: The embedded nipple technique is feasible and effective for continent CUD.

UP.649

The Assessment of the Degree of Renal Deterioration as well as Renal Failure in Patients with Ileal Conduit Urinary Diversion Dependent on the Type of Ureterointestinal Anastomosis

Kajmakovic B¹, Dzamic Z¹, Bogojevic B¹, Acimovic M¹, Hadzi Djokic J²
¹Dept. of Urology, Clinical Center of Serbia, Belgrade, Serbia; ²Serbian Academy of Sciences and Arts, Belgrade, Serbia

Introduction and Objectives: We review the degree of renal deterioration and renal failure dependent on the type of ureterointestinal anastomosis to determine the most appropriate type of ureterointestinal anastomosis.

Materials and Methods: The study was conducted on 193 patients from 2007 to 2011. Follow-up was 48 months. Assessment of the renal deterioration was made by ultrasound. For the assessment of the level of renal failure we analyzed biochemical parameters of renal function. All patients were classified into three groups established by the method of insertion of ureter.

Results: In a Wallace A group, no significant changes were noticed at right renal units. In more than half of the cases of left renal unit, a higher degree of renal deterioration has been detected. At Wallace B group, the degree of renal deterioration of right renal units remained approximately the same. The initial state of the left renal unit was initially a bit lower than in Wallace A group. The degree of renal deterioration of left renal units was significantly higher. Considering right renal units in Nesbit-Bricker group, the condition was unchanged. Similar results have also been demonstrated in left renal units. In group of patients with Nesbit-Bricker technique, a lesser degree of renal deterioration was noticed. RI was verified in 83 (74.1%) patients in Wallace A group. Thirty seven

(44.6%) patients had some degree of RI preoperatively while in 46 (55.4%) patients this was not the case. RI was verified in 31 (62%) patients in Wallace B group; 16 (51.6%) patients had some degree of RI preoperatively while in 15 (48.4%) patients this was not the case. In Nesbit-Bricker group, RI was detected in 22 (71%) patients, 7 (31.8%) patients had also RI preoperatively while in 15 (68.2%) patients there was no preoperative RI.

Conclusions: All three techniques are equally successful and have similar complications. Comparison of different techniques, detected higher degree of deterioration on left renal units is less common in Nesbit-Bricker group of patients. Renal failure appears equally often. Quality of life is similar.

UP.650

Undiversion of the Urinary Tract

Volkmer B¹, Schwarz J¹, Kahlmeyer A¹, de Petriconi R², Hautmann R²

¹Klinikum Kassel, Kassel, Germany; ²University of Ulm, Ulm, Germany

Introduction and Objectives: Cystectomy patients sometimes need undiversion of their initial urinary diversion (UD) into another form of UD. This surgical procedure is influenced by the anatomic and oncologic situation, the renal function, and the experience of the surgeon. Our aim was to analyze our series of very individual cases of undiversion.

Materials and Methods: Between 01/86 and 03/09 a total number of 1616 UD were performed at one single institution. In this series we identified 48 patients with 51 undiversions of the urinary tract (Female: n=25, male: n=23). All epidemiological, functional and oncologic data were collected with a complete follow-up until death or until 03/09.

Results: The age at the time of initial UD was 2-81 (mean: 50) years, the age at the time of undiversion was 18-81 (mean: 56) years. The time from initial UD to undiversion was 0-286 (mean: 57) months. The reason for cystectomy was malignancy in 28 cases and benign disease in 23 cases. The undiversions were: continent to continent: n=14, incontinent to continent: n=14, continent to incontinent: n=13, incontinent to incontinent: n=10. 12 patients suffered from tumor recurrence affecting the initial urinary diversion: urethral: n=4, ureteral: n=3, local: n=3, other: n=2. All cases with an intestinal segment infiltrated by tumor had lymph node metastases in the mesentery requiring the complete resection of the diversion. In 8 cases the reason for undiversion was an early (within 1 year) deterioration of the initial urinary diversion by abscess, infarction of the mesenteric artery, or radiogenic damage. In 6 patients progressive renal failure after continent UD required the undiversion to an incontinent diversion. In 25/51 cases parts of the initial UD

(intestinal segments with ureteral anastomoses) could be incorporated in the new diversion. One patient suffered from short bowel syndrome. All 6 patients with an undiversion to an orthotopic neobladder with previous closure of the membranous urethra later needed long-term CIC. Four out of 48 patients died within 90 days after undiversion from complications or tumor progression.

Conclusions: Undiversion of the urinary tract requires highest experience in reconstructive surgery. Selecting an individual strategy for each patient is important for obtaining good long-term results.

UP.651

Suprapubic Tube Placement after Orthotopic Urinary Diversion: Is It Mandatory?

Swain S, Ali A, Kava B, Manoharan M, Satyanarayana R
Miller School of Medicine, Miami, USA

Introduction and Objectives: Various techniques of orthotopic urinary diversion have been described in the literature and it is thought that the placement of a suprapubic

tube (SPT) would reduce the rate of orthotopic urinary diversion specific complication. In this study we will evaluate the need of SPT placement in orthotopic neobladder, and if it is indicated or not.

Materials and Methods: In a retrospective study, patients who underwent orthotopic urinary diversion at University of Miami between 1992 and 2010 were reviewed. The patients were divided into two groups: one with SPT insertion after orthotopic urinary diversion and another without. The characteristics of those two groups were recorded, in particular, their age, sex, pathological stage of the disease as well as their post-operative complications and number of post-operative visits (POVs). The results were compared and analysed.

Results: A total of 295 patients had cystectomy and neo-bladder. Thirty four patients had the placement of SPT at the procedure and 261 had no SPT. The two groups of patients matched well in terms of patient age, sex and pathological stage of urothelial cancer. Of the 34 patients who had SPT placement, post-operative neo-bladder specific complications included 3% anastomotic leakage (1 patient), 21% Urinary tract infection (UTI), 9% wound

infection and 3% fistula formation. No neo-bladder perforation noted. Of the 261 patients who had no SPT placement, there was no anastomotic leakage, 17% UTI, 7% wound infection and 4% fistula formation. One patient experienced neo-bladder perforation (0.4%). The post-operative neo-bladder specific complication is similar between the two groups. Patients who had SPT insertion after orthotopic urinary diversion needed more post-operative visits (Table 1).

Conclusion: In conclusion, we believe the insertion of SPT after neo-bladder is not mandatory. The SPT insertion may require patients to have attended more post operative visit.

UP.652

Risk Factors and Implications of Parastomal Hernia in Patients Undergoing Radical Cystectomy and Ileal Conduit

Swain S, Ali A, Parekh D, Soloway M, Manoharan M
Miller School of Medicine, Miami, USA

Introduction and Objectives: Stomal complications are of a major concern that can alter the quality of life in patients undergoing radical cystectomy (RC) and ileal conduit (IC) urinary diversion. The incidence of parastomal hernia is between 3.9 to 25%. Our aim is to identify the risk factors for developing parastomal hernia and to describe the management of such complication.

Materials and Methods: We performed a retrospective analysis on patients who underwent RC and IC urinary diversion for bladder cancer between 1992 and 2011. Patients were divided into 2 groups based on whether or not they developed parastomal hernia. All relevant variables were collected and compared. Chi square test compared categorical variables and independent sample t test compared continuous ones.

Results: A total of 442 patients were included in the study. Forty five of them (10.2%) developed parastomal hernia. The mean age of patients who developed hernia was 73.3 (range 60-84). There was no significant difference in age, body mass index (BMI), Gender, and Pathological stage between the 2 groups. The administration of Neoadjuvant or adjuvant chemotherapy did not influence the development of parastomal hernia. However, patients who developed parastomal hernia had a significantly longer follow-up ($p < 0.001$) (Table1). Of the 45 patients with Parastomal hernia, only 1 patient had coexisting stomal stenosis. All parastomal hernia patients were managed conservatively with hernia belt except for one patient who required surgical repair.

Conclusion: The incidence of Parastomal hernia in our study population was 10.2%. There are no risk factors increasing the risk of parastomal hernia other than the longer

UP.651, Table 1. Demographics and complications with SPT versus patients with no SPT

| | SPT N=34 (%) | No SPT N=261 (%) | p |
|-------------------------|------------------|------------------|--------|
| Age Median (IQR) | 62.0 (59.5-69.5) | 65.0 (59.0-71.0) | 0.98 |
| BMI Median (IQR) | 25.8 (24.3-30.4) | 26.6 (23.8-29.8) | 0.70 |
| POVs Median (IQR) | 3.0 (2.5-3.5) | 2.0 (2.0-2.0) | <0.001 |
| Gender | | | |
| Male | 33 (97) | 238 (91) | 0.332 |
| Female | 1 (3) | 23 (9) | |
| Neo-bladder Perforation | 0 | 1 (0.4%) | 1.0 |
| UTI | | | |
| Yes | 7 (20.5) | 45 (17) | 0.63 |
| No | 27 (79.5) | 216 (83) | |
| Anastomotic leak | | | |
| Yes | 1(3) | 0 (0) | 1.0 |
| No | 33 (97) | 261 (100) | |
| Wound infection | | | |
| Yes | 3 (9) | 18 (7) | 0.72 |
| No | 31 (91) | 243 (93) | |
| Fistula formation | | | |
| Yes | 3 (9) | 10 (4) | 0.17 |
| No | 31 (91) | 251 (96) | |
| Pathologic stage | | | |
| Tis | 5 (14.5) | 28 (11) | 0.62 |
| Ta | 0 | 7 (2.5) | |
| T0 | 2 (6) | 37 (14) | |
| T1 | 2 (6) | 29 (11) | |
| T2 | 11 (32.5) | 72 (27.5) | |
| T3 | 12 (35) | 75 (29) | |
| T4 | 2 (6) | 13 (5) | |

UP.652, Table 1. Demographics and disease criteria

| | Parastomal Hernia | | P |
|---------------------------|-----------------------|-----------------------|--------|
| | Present 45 (10.2%) | Absent 397 (89.8%) | |
| Age Mean (Range) | 73.3 (60-84) | 72.3 (43- 91) | 0.352 |
| BMI Mean (Range) | 26.4 (13.6 – 45.0) | 27.1 (14.1 – 49.2) | 0.411 |
| Follow-up Mean (Range) | 64.0 (2 – 206) | 29.2 (0 – 198) | <0.001 |
| Gender | | | 0.084 |
| Male | 27 (60.0) | 288 (72.5) | |
| Female | 18 (40.0) | 109 (27.5) | |
| pT | | | 0.071 |
| T0 | 10 (22.2) | 39 (10.0) | |
| T1 | 2 (4.4) | 25 (6.4) | |
| T2 | 12 (26.7) | 87 (22.3) | |
| T3 | 11 (24.4) | 121 (31.0) | |
| T4 | 4 (8.9) | 66 (16.9) | |
| Ta | 3 (6.7) | 9 (2.3) | |
| Tis | 3 (6.7) | 43 (11.1) | |
| NAC | 6 (13.3) | 65 (16.5) | 0.675 |
| AC | 7 (15.6) | 77 (19.4) | 0.689 |
| Stomal stenosis | 1 (2.2) | 1 (0.3) | 0.193 |
| Stomal retraction | 0 | 2 (0.5) | 1.000 |

pT; pathological stage, NAC; neoadjuvant chemotherapy, AC; adjuvant chemotherapy

follow-up after RC and IC urinary diversion. In our cohort, parastomal hernia was managed conservatively. Only one patient required surgical repair of parastomal hernia. Obesity did not seem to affect parastomal hernia development.

UP.653

What to Do When Ileal Conduit Bags Are No Longer Available

Browning A¹, Williams G²

¹Selian Fistula Project, Arusha, Tanzania; ²Bethal Teaching Hospital, Addis Ababa, Ethiopia

Introduction and Objectives: Most patients with an incurable obstetric fistula are left to spend the rest of their life incontinent. Some have had an ileal conduit performed by surgical tourists without realising that bags are not available or not affordable. In others the supply of bags ceases due to government import restrictions. We recently dealt with a lady who had an ileal conduit performed nine years ago but her supply of bags stopped five years ago. Since then she has attempted suicide on three occasions because of her incontinence and social isolation. We describe a new operation to reduce the ileal conduit and, make her continent and improve her quality of life.

Materials and Methods: Case study of a patient with an incurable obstetric fistula who had failed several operative attempts. She subsequently had an ileal conduit operation in rural Tanzania but was eventually left without a supply of any sort of collecting bag or device.

Results: The patient had been living with the ileal conduit for nine years and without a collection device for five. Her skin was excoriated, painful and odorous. She has been suicidal and was desperate for the conduit to be taken away. Her renal tract on ultrasound was normal, her renal function normal and she was able to hold 300ml or warm saline in her rectum for two hours without spillage. After planning, counseling and consenting, an operation was performed whereby the conduit was reduced and incorporated into the anterior wall of a Mainz II pouch. She made an uneventful recovery, was discharged home and followed up by mobile phone. She remained continent with a slight leakage at night at times. Her quality of life had improved and is no longer contemplating suicide.

Conclusions: This operation has not been previously described and should be considered in patients with a conduit and no bags.

UP.654

Mid-Long Term Complications of Deserosalized Muscle Layer Covering Method for Antirefluxing Ureteroenteric Anastomosis to Continent Urinary Diversion after Total Cystectomy

Shimbo M, Muraishi O, Endo F, Matsushita K, Kyono Y, Hishiki K, Hattori K
St. Luke's International Hospital, Tokyo, Japan

Introductions and Objectives: A recent trend of anastomosis of the ileal orthotopic

neobladder is not to apply the antirefluxing technique. However, Eisenverg et al. showed that postoperative hydronephrosis, pyelonephritis and ureteroenteric stricture were modifiable risk factors to a decrease in long-term renal function (J Urol 2013). Shioji et al. developed new antirefluxing technique and reported the usefulness and feasibility of the procedure (J Urol 2002). We applied this technique and evaluated the complications in the mid-long term results.

Materials and Methods: From 2005 to 2012, 36 patients (4 woman and 32 men) who underwent continent urinary diversion with this technique following cystectomy were evaluated. Hautmann ileal neobladder and Mainz pouch were created for 32 and 4 cases, respectively. The ureters were implanted into the reservoir using the deserosalized muscle layer (DSML) covering method. We assessed the rate of stenosis at the ureteroileal anastomosis, pyelonephritis and new formation or worsening of hydronephrosis after this procedure. A follow-up in all patients included renal ultrasonography or abdominal computerized tomography and blood testing every 6 to 12 months.

Results: The median age was 60.8 years and median follow-up period was 57 months (9-110 months). Five patients (13.8%) experienced pyelonephritis; however there was no recurrent case after one time treatment. Six hydronephrosis (8.5% for 71 renoureteral units) were detected. Ureteral stricture at the ureteroileal anastomotic site was seen in only one unit (1.4%).

Conclusions: The DSML covering method provided equal or less complications than other ureteroileal anastomosis methods. This technique is especially useful for the continent cutaneous reservoir, which needs an antirefluxing system, and also appropriate for the ileal neobladder in consideration of long term renal function decrease due to ureteral reflux and following pyelonephritis.

UP.655

Uretero-Colonic Anastomosis of Dilated Ureters in Orthotopic Sigmoid Neobladder: A Novel Technique

Khalaf I, Mahmoud M, Saleh S, Eleweedy S
Al Azhar Faculty of Medicine, Cairo, Egypt

Introduction and Objectives: Ureteral anastomosis in orthotopic sigmoid neobladder after radical cystectomy is traditionally done by an antireflux submucous tunnel (as Leadbetter or Goodwin) to preserve renal integrity. Should the ureters be dilated and/ or thick, submucous tunnel may not be the optimal option. Herein, we describe a novel technique for uretero-colonic anastomosis suitable for normal as well as dilated ureters, in low pressure large capacity colonic bladder substitutes.

Materials and Methods: During formation

of orthotopic sigmoid neobladder after radical cystectomy, two longitudinal incisions are made along each side of 4-5 cm of teniae coli. Then the delineated segment is stripped off the sigmoid wall exposing colonic mucosa to create a bed or trough where each ureter is laid down without angulation or twisting. Using 3/0 vicryl sutures, mucosa to mucosa anastomosis is done between the spatulated distal end of the ureter and a button-hole in the colon created at the distal end of the teniectomy bed. Both sidewalls of the ureter are then fixed to the seromuscular layer of the colon. Patients were monitored at 3, 6 and 12 months for urine leakage, renal backpressure or reflux.

Results: This technique was applied in 15 patients (29 renal units) in whom cystectomy was carried out for invasive bladder carcinoma at Al Azhar University Hospital, Cairo, Egypt. No anastomotic urine leakage occurred while mild non-progressive degree of ureteral stenosis in one unit (3.4%), reflux in 4 units (13.7%) and two units of renal function deterioration were observed.

Conclusion: Uretero-colonic anastomosis in the bed of excised tunica is recommended for the dilated/ or thick ureter in low pressure high capacity colonic reservoir.

UP.656

Is Periurethral Injection of Macroplastique® a Viable Option for Patients with Post-Prostatectomy Urinary Incontinence?

DeLong J, McCammon K

Eastern Virginia Medical School, Norfolk, USA

Introduction and Objectives: Male stress urinary incontinence (SUI) has emerged as a significant morbidity following treatment for prostate cancer. Injectables have traditionally not been successful for treatment of SUI, but post robotic prostatectomy patients may represent a different population. We aimed to assess whether periurethral injection of Macroplastique® is effective for men with post-prostatectomy incontinence (PPI).

Materials and Methods: A retrospective chart review was performed, identifying men who underwent periurethral injection of Macroplastique® for bothersome PPI between May 2011 and December 2013 at our institution. Basic demographic information was collected. Pre and post-operative pad use was recorded, as well as pertinent perioperative data. Success was defined as at least 50% improvement in incontinence. All injections were performed by a single surgeon using standard surgical technique.

Results: Fourteen men were identified who underwent Macroplastique® injection. Only one patient underwent previous pelvic radiation in the cohort. Average patient age at intervention was 66 years. Twelve of the 14 patients (86%) underwent prior AdVance™ sling

placement that failed to sufficiently improve their PPI. One patient had not undergone an anti-incontinence procedure previously. One patient underwent an AUS 8 years prior to injection. Median preoperative pad use per day was 2 (range 1-6). At a mean follow-up of 9 months, 9 of 14 men (65%) were considered a success, with greater than or equal to 50% improvement in pad use. Seven of those 9 (78%) were "cured" with zero to one pads per day used. Three patients went on to receive artificial urinary sphincters, and one to undergo AdVance™ placement. One patient underwent repeat Macroplastique® injection and is now dry. No major complications were noted; two patients required catheterization for a short period postoperatively, which resolved, and one patient was treated for a UTI.

Conclusions: Periurethral injection of Macroplastique® has favorable results with short-term follow-up for men with bothersome PPI. It is associated with low morbidity, and does not preclude successful surgical intervention in the future if needed. Larger studies with longer follow-up are needed to confirm these results.

UP.657

Preoperative Risk Factors of Failure after Mid-Urethral Sling Operation for Treating Women with Mixed Urinary Incontinence

Shim K, Seo Y, Heo J

Busan Veterans Hospital, Busan, South Korea

Introduction and Objectives: We evaluated risk factors for failure after mid-urethral sling (MUS) operation in patients with mixed urinary incontinence (MUI).

Materials and Methods: Eighty five women with MUI underwent MUS operation between June 2009 and October 2012 with at least 1-year follow-up. The following measures were recorded before MUS: age, number of delivery, body mass index, history of hysterectomy and hormone replacement, severity of incontinence, degree of cystocele, a disease-specific validated questionnaires, 1-hour pad test, maximal flow rate, postvoid residual urine volume, standardized stress test and urodynamic study. Urodynamic study included maximal urethral closure pressure, maximal cystometric capacity, involuntary detrusor contraction and Valsalva leak point pressure. Patients underwent retropubic (32/85, 37.6%) or trans-obturator (53/85, 62.4%) MUS operation. All patients were asked to visit clinic at 1, 3, 6 month and 1 year after surgery. Cure was defined as absence of any episodes of urine leakage. Improvement was defined subjectively as a significant reduction of urine leakage. All other outcomes were regarded as failure. Chi-square test was used to compare clinical operative results and subjective satisfaction. Univariate and multivariate logistic regression analysis was used to determine the risk factors of failure after MUS operation.

Results: At 1 year after surgery, 69.4% of patients were rated as "cured", 83.5% as "cured and improved", and 76.5% as "very satisfied and satisfied". We analyzed the pattern of post-operative persistent incontinence in improved and failed group (26 patients). Six patients (23.1%) were mixed incontinence type, 3 patients (11.5%) were stress type and 17 patients (65.4%) were urge type. Weight of 1-hour pad test, AUA Symptom Index-QoL score, maximal cystometric capacity (MCC), and involuntary detrusor contraction (IDC) were risk factors in univariate analysis, but only MCC (adjusted OR=1.2, 95% CI=0.720-1.071, p=0.032) and IDC (adjusted OR=2.4, 95% CI=1.047-4.045, p=0.041) were independent risk factors in multivariate analysis.

Conclusion: MCC and IDC, which indicate pathophysiologic condition of detrusor muscle itself, were important predictors of failure of MUS operation in patients with MUI.

UP.658

The Use of High-Frequency Micro-Ultrasound to Assess Urethral Function at Different Saline Infusion Rates in Female Rats

Hakim L¹, Callewaert G², M Soebadi D³, Deprest J², De Ridder D¹, Albersen M¹, Van der Aa F¹

¹Laboratory of Experimental Urology, Dept. of Development and Regeneration, KU Leuven, Leuven, Belgium; ²Laboratory of Experimental Gynecology, Dept. of Development and Regeneration, KU Leuven, Leuven, Belgium;

³Dept. of Urology, Faculty of Medicine, Airlangga University/Dr. Soetomo General Hospital, Surabaya, Indonesia

Introduction and Objectives: Leak point pressure (LPP) test and electromyography of the external urethral sphincter (EUS EMG) are commonly used methods to assess urethral function in rodents, meanwhile adequate standardization of these techniques is lacking. Different saline infusion rates (between 2.4 ml/hr and 30 ml/hr) have been used in studies, resulting in different outcomes. We have previously shown that high-frequency micro-ultrasound (μUS) can be used as an objective method to assess urethral function in normal rats and vaginal distension (VD) model under vesical saline-infusion rate of 60ml/hr. We compare the pattern of EUS bursting using different vesical saline infusion rates by simultaneously combining μUS, EUS EMG and cystometrogaphy (CMG).

Materials and Methods: Simultaneous μUS and EUS EMG and CMG were performed in control-virgin sprague dawley-rats of 12 weeks old under urethane anesthesia. Different vesical saline infusion rates (5ml/hr, 10ml/hr and 60ml/hr) were applied. The Vevo 2100 US system with MS-400 transducer (30 MHz) was used. A 30G

bipolar concentric needle was placed adjacent to the mid-urethra and raw EMG signals were measured. The baseline (BP), threshold (TP) and peak pressures (PP) were measured. Intraburst analysis was performed during the 2nd phase of voiding cycle, and a 1-sec measurement was performed using interbursting interval (IBI) and length of bursting (LOB) parameters. The total length of bursting (TLB) and rate of bursting (ROB) were also compared.

Results: The BP, TP and PP at 60ml/hr infusion rate were significantly higher than others. The ROB were the same at 5ml/hr, 10ml/hr and 60ml/hr (5.4 ± 0.24 , 5.4 ± 0.4 and 5.8 ± 0.37 cycle/sec respectively; $p = 0.55$). The TLB showed no significant differences using μ US and EMG EUS (4.37 ± 0.36 , 5.7 ± 1.7 and 8.84 ± 2.62 sec, $p = 0.19$). The IBI ($p = 0.32$) and LOB ($p = 0.34$) based on EUS EMG showed no significant differences at different infusion rates. Similarly, the μ US showed also no significant differences of IBI ($p = 0.79$) and LOB ($p = 0.07$).

Conclusions: Our study shows that different vesical saline infusion rates do not induce differences of EUS bursting patterns as measured by μ US and EUS EMG. These results reveal that μ US and EUS EMG could be used at different saline-infusion rates with consistent results to measure urethral function.

UP.659

The Validation of High-Frequency Micro-Ultrasound with Electromyography as a Novel Method to Assess Urethral Function in Female Rats

Hakim L¹, Callewaert G², M Soebadi D³, Deprest J², De Ridder D¹, Albersen M¹, Van der Aa F¹

¹Laboratory of Experimental Urology, Dept. of Development and Regeneration, KU Leuven, Leuven, Belgium; ²Laboratory of Experimental Gynecology, Dept. of Development and Regeneration, KU Leuven, Leuven, Belgium; ³Dept. of Urology, Faculty of Medicine, Airlangga University/Dr. Soetomo General Hospital, Surabaya, Indonesia

Introduction and Objectives: Leak point pressure (LPP) test and / or electromyography of the external urethral sphincter (EUS EMG) are commonly used methods to assess urethral function in female rodents. Since these methods are invasive, operator dependent and need high number of rats per experiment, a novel method that is less invasive, less operator dependent and reproducible requiring a minimum number of animals is essential. We have previously shown that high-frequency micro-ultrasound (μ US) is an objective method to assess the external urethral sphincter (EUS) bursting activity in normal rats and rats after vaginal distension (VD). In this study we validated the μ US with EUS EMG measurements in female rats by performing 1-second intraburst analysis

at different transvesical saline-infusion rates.

Materials and Methods: Simultaneous μ US and EUS EMG were performed in control-virgin sprague dawley rats of 12 weeks old under urethane anesthesia (1.2gr/kg). Different vesical saline infusion rates (5ml/hr, 10ml/hr and 60ml/hr) were applied. The Vevo 2100 US system was used and equipped with MS-400 transducer (30 MHz). A 30G bipolar concentric needle was placed adjacent to the mid-urethra and raw EMG signals were measured. The MP150 Biopac system. Intraburst analysis was performed during the 2nd phase of the normal voiding cycle, and a 1-sec measurement was performed using predetermined parameters: interbursting interval (IBI) and length of bursting (LOB). Both of these parameters were compared between μ US and EMG measurements. All data are presented as mean \pm SEM and all statistical tests were considered significant if $p < 0.05$.

Results: The IBI and LOB at 5ml/hr, 10ml/hr and 60ml/hr showed no significant differences if measured by EMG and μ US ($p < 0.05$).

Conclusions: Both μ US and EUS EMG measurements allow adequate recordings of urethral function in female rats. We have shown no significant differences of IBI and LOB either at 5 ml/hr, 10ml/hr or 60 ml/hr saline-infusion rates when comparing both techniques. The μ US provides similar results to EUS EMG, with the advantages of being less-operator dependent and non-invasive. The μ US could be used to perform consecutive measurements in the same animal which in turn leads to less animals needed in experiments.

UP.660

Predictive Factor for Improving Urge Urinary Incontinence after the Trans-Obturator Tape Procedure in Mixed Urinary Incontinence Patients

Kim B, Jung W, Ha J, Park C, Kim C
Keimyung University, Daegu, South Korea

Introduction and Objectives: In mixed urinary incontinence, combination treatment of medication and surgery are usually used. But, some studies reported successful single surgical treatment outcome. We investigate predictive factor for improving urge urinary incontinence after the trans-obturator tape (TOT) surgery in mixed urinary incontinence.

Materials and Methods: From January 2008 to May 2013, of 113 patients who received TOT, 70 patients with urge incontinence symptom were analyzed. Medical history, physical examination, with diabetes mellitus and hypertension, preoperative anticholinergic usage, body mass index (BMI), parity, obstetric surgical history, menopausal status, cystocele, urodynamic study, post voiding residual urine volume, preoperative duration of symptoms and the postoperative urgency were analyzed

retrospectively. Age and BMI was divided 60 years and 25kg/m² respectively.

Results: The mean age of the patients was 57.5 years, mean BMI was 25.28kg/m², the number of patients with symptom grade I (pad <2) was 11 (15.7%), grade II (2 <pad <5) was 50 (71.4%) and grade III (pad > 5) was 9 (12.9%). Mean parity was 2.67 times. The number of patients who had diabetes mellitus was 5 (7.1%), hypertension was 30 (42.9%), cystocele was 35 (50%), history of hysterectomy in 14 (20%), postmenopausal status was 56 (80%). The mean preoperative maximum flow rate was 28.61ml/sec, the mean post-voiding residual urine volume was 5.43ml. Forty six patients were taking preoperative anticholinergics (65.7%), mean duration of preoperative symptom was 8.1 months. Of the 70 patients who received TOT surgery, 50 patients (71.4%) had improved symptoms of the urge incontinence after the surgery. In univariate analysis, the cases of younger age ($p = 0.023$), lower BMI ($p = 0.035$), never used anticholinergics preoperatively ($p = 0.022$) and absence of hypertension ($p = 0.035$) had significantly more symptom improvements. However, in multivariate analysis, age (95% CI, 0.047-0.869; $p = 0.032$) was the only statistically significant factor.

Conclusion: Elderly patients with mixed urinary incontinence would have persisting symptoms of urge incontinence after TOT surgery. Thus, the age should be considered when treating mixed SUI.

UP.661

Transurethral Plus Transvaginal Periurethral Injection of Autologous Adipose Stem Cells to Periurethral Region for Treatment of Female Stress Urinary Incontinence

Arjmand B^{1,2}, Safavi M¹, Heydari R¹, Aghayan H², T. Bazargani S¹, Dehghani S¹, Goodarzi P², Mohammadi-Jahani F², Pourmand G¹, Beladi L¹, Alizadeh F¹

¹Urology Research Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran; ²Brain and Spinal Cord Injury Research Center, Tehran University of Medical Sciences, Tehran, Iran

Introduction and Objectives: Stress urinary incontinence is a common medical problem among women. The urethral closure complex and/or the support mechanisms are responsible for incontinence in the majority of patients. Several surgical procedures with different degrees of invasiveness and outcomes have been reported to treat the problem.

Materials and Methods: Ten women with symptoms of stress urinary incontinence treated by injections of autologous adipose-derived stem cells into the periurethral region via trans-urethral and transvaginal- under urethroscopic observation. This report presents the short-term outcomes of the patients. Patients' outcome was

evaluated by pad test results, ICIQ-SF scores and Qmax.

Results: The mean age of the participants was 45.8 ± 8.7 years. Urinary incontinence significantly decreased through the first two, 6 and 24 weeks after the injection therapy. The difference was significant in pad test results ($p < 0.001$) and ICIQ-SF scores ($p < 0.001$). Surprisingly, Qmax showed improvement after the study period (means 32.6 vs. 35.7 ; $P = 0.002$).

Conclusions: This study showed that injection of the autologous adipose-derived stem cells to periurethral region is a safe and effective treatment option for stress urinary incontinence.

UP.662

Male Remeex System for Urinary

Incontinence: Results after 7

Years of Follow-Up

Sousa A

Hospital Comarcal de Monforte, Monforte, Spain

Introduction and Objectives: Suburethral slings are gaining interest as first option treatment in male urinary incontinence. The aim of this study was to evaluate safety, efficacy and durability of the MRS including how many postoperative adjustments were required to achieve continence of a group of patients followed during 7 or more years.

Materials and Methods: Fifty male patients with moderate to severe UI were prospectively operated on using an adjustable sling (MRS). The etiology of incontinence was status post radical prostatectomy in 45 cases, TURP in three cases, and open prostatectomy in two cases. Average follow-up was at 90 months. Long-term cure rates and number of adjustments were recorded.

Results: All 50 patients required an adjustment after surgery, which was performed under local anesthesia. Mean number of adjustment procedures during the whole follow-up was 4.3. The longest time interval from placement of the MRS to the adjust was 106 months. A total of 35 patients (70%) were considered continent (pad use 0-1). Eleven patients (22%) showed significant reduction of their pad use (>50%). Five cases (8%) remained incontinent. Of these five patients, one suffered a CVA unrelated to the operation but was disqualified for further adjustments, and four patients were disqualified for further adjustments due to tumor progression. There was one mesh erosion and three varicose seromas which lead us to retire it but leaving the threads and mesh in place remaining continent. In 20% cases, uneventful intraoperative bladder/urethral perforations occurred which required only new passage of the needles. Six mild perineal hematomas were reported and almost all patients reported perineal discomfort or pain which was successfully resolved with oral medications.

Conclusion: Mean follow-up data of 90 months showed a high success rates due to the

possibility to adjust the tension of the device under local anesthesia at any moment during patients life. Postoperative complications were mild and transient.

UP.663

Body Mass Index as a Risk Factor of Sling Tension Readjustment for Recurrence of Stress Urinary Incontinence after the Remeex System

Lee S¹, Park D¹, Hong Y¹, Kim D²

¹CHA Bundang Medical Center, CHA University, Seongnam, South Korea; ²CHA Gangnam Medical Center, CHA University, Seoul, South Korea

Introduction and Objectives: We evaluated the risk factors that predict sling tension readjustment (STR) after the Remeex system in patients with recurrent stress urinary incontinence (SUI) or intrinsic sphincter deficiency (ISD).

Materials and Methods: We retrospectively reviewed the records of 32 patients who underwent the Remeex system for recurrent SUI or ISD between November 2010 and June 2012. Of these patients, one patient whose sling tension was reduced due to urinary obstruction was excluded. The need for STR was determined through the stress test and sling tension was increased under local anesthesia. Patients were divided into two groups according to

the STR. Patient's clinical characteristics were evaluated as the risk factors for STR (Table 1).

Results: Among 31 patients, four patients (12.9%) underwent STR, and mean follow-up period was 23.9 ± 5.7 months (range, 18-37 months). BMI was significantly higher in patients with STR than patients without STR (Table 1). There were also significant differences of hysterectomy history between the patients with and without STR (Table 1). Logistic regression analysis revealed that only BMI was a significant risk factor of STR after the Remeex system ($OR = 5.532$, 95% $CI = 1.058-28.919$, $p = 0.043$) (Table 2).

Conclusion: BMI was a significant risk factor of STR after the Remeex system. Measurement of BMI may help to better predict the patients with high possibility of STR after the Remeex system.

UP.665

Acute Dose-Related Differential Effects of Methylphenidate on Murine Cystometric Parameters

Yoon S¹, Kim K², Park S¹, Lee T¹, Seong D¹, Cho S³

¹Inha University, Incheon, South Korea; ²Gachon University Gil Hospital, Incheon, South Korea; ³Hallym University Kangnam Sacred Herat Hospital, Seoul, South Korea

UP.663, Table 1.

Table 1. Comparison between patients with and without sling tension readjustment after a REMEEEX system [Mean±SD, (range)].

| Characteristics | Total | Readjustment (+) | Readjustment (-) | P Value* |
|----------------------------------|-----------------------|-----------------------|-----------------------|--------------------|
| Number of patients (%) | 31 | 4 (12.9) | 27 (87.1) | |
| Age (years) | 61.3±10.4 (36-86) | 59.8±7.9 (53-70) | 61.5±10.8 (36-86) | 0.558 ¹ |
| BMI (kg/m ²) | 23.6±1.5 (21.5-27.8) | 26.2±1.1 (25.3-27.8) | 23.3±1.2 (21.5-26.8) | 0.001 ¹ |
| Parity (number) | 2.4±1.7 (0-7) | 2.3±1.5 (1-4) | 2.4±1.7 (0-7) | 0.982 ¹ |
| VLPP (cm H ₂ O) | 45.8±17.1 (7.0-96.0) | 44.8±4.3 (42.0-51.0) | 45.9±18.3 (7.0-96.0) | 0.700 ¹ |
| MUCP (cm H ₂ O) | 47.8±28.2 (7.0-122.0) | 41.3±16.1 (27.0-58.0) | 48.8±29.7 (7.0-122.0) | 0.560 ¹ |
| MBC (ml) | 307.5±30.4 (281-467) | 301.8±0.5 (301-302) | 308.3±32.6 (281-467) | 0.351 ¹ |
| MFR (mL/s) | 19.0±9.9 (7.4-39.2) | 12.8±4.2 (8.5-16.5) | 19.9±10.3 (7.4-39.2) | 0.061 ² |
| Hypertension (Yes / No) | 10 / 21 | 2 / 2 | 8 / 19 | 0.577 ² |
| Diabetes (Yes / No) | 7 / 24 | 0 / 4 | 7 / 20 | 0.550 ² |
| Menopause (Yes / No) | 25 / 6 | 3 / 1 | 22 / 5 | 1.000 ² |
| Previous sling op (Yes / No) | 5 / 26 | 2 / 2 | 3 / 24 | 0.112 ² |
| Hysterectomy (Yes / No) | 8 / 23 | 3 / 1 | 5 / 22 | 0.043 ² |
| Detrusor overactivity (Yes / No) | 31 / 93 | 3 / 1 | 6 / 21 | 0.063 ² |

SD = standard deviation; BMI = body mass index; VLPP = Valsalva leak point pressure; MUCP = maximum urethral closure pressure; MBC = maximum bladder capacity; MFR = postoperative maximum flow rate; ¹ = Mann-Whitney U test; ² = Fisher's exact test

* $p < .05$ was considered statistically significant.

UP.663, Table 2.

Table 2. Logistic regression analysis for factors affecting postoperative sling tension readjustment after a REMEEEX system.

| Parameter | Univariate | | | Multivariate | | |
|--------------|------------|--------|---------------|--------------|-------|---------------|
| | P | OR | 95% CI | P | OR | 95% CI |
| BMI* | 0.028 | 5.649 | 1.209-26.394 | 0.043 | 5.532 | 1.058-28.919 |
| Hysterectomy | 0.040 | 13.200 | 1.125-154.920 | 0.208 | 9.952 | 0.278-356.759 |

*Parameters were analyzed as a continuous variable per unit.

BMI, body mass index; OR, odds ratio; CI, confidence interval.

Introduction and Objectives: Methylphenidate is the most widely used central nervous system stimulant in patients with attention deficit hyperactivity disorder. However, few studies have assessed its effects on voiding. Various doses of methylphenidate were investigated for their effects on cystometric parameters in conscious mice.

Materials and Methods: Ten male C57BL/6 mice, weighing between 20 and 23 g, were used in this study. To compare the acute drug responses before and after the oral medication was administered in the awake condition, we injected the solution through a catheter inserted into the stomach. Methylphenidate (1.25, 2.5, and 5 mg/kg) in an injection volume of 0.05 mL was administered.

Results: Four mice that received high doses of methylphenidate (2.5 and 5 mg/kg) showed no voiding contraction, with urine leakage. Six mice that received a low dose of methylphenidate (1.25 mg/kg) showed typical micturition cycles before and after administration. The micturition pressure decreased and bladder capacity increased without an increased residual volume after administration.

Conclusion: Methylphenidate has differential, dose-dependent effects on the function of the lower urinary tract, due to the dependent relationship between the brain and lower urinary tract. Especially at higher doses, this drug may interfere with normal micturition. Therefore, more detailed clinical or experimental studies are warranted in the future.

UP.666

Anatomical and Clinical Aspects of Urinary Incontinence after Radical Retropubic Prostatectomy

Al-Khariri M, Lukyanov I, Lukianova A
Urology and Surgical Andrology Clinic, Russian Medical Academy of Postgraduate Education, Moscow, Russia

Introduction and Objectives: Identification of criteria for urinary continence after RPE

Materials and Methods: N=57 (Median: age=62 years; preoperative PSA=8.7 ng/ml; observation time after RPE=8 months) MRI prior to RPE:

- Membranous urethral length

- Shape of the prostatic apex

MRI after RPE:

- Membranous urethral length

- Shape of the prostatic apex on sagittal MRI:

- A: apex overlapping membranous urethra both anteriorly and posteriorly (n=12)

- B: apex overlapping membranous urethra anteriorly (n=13)

- C: apex overlapping membranous urethra posteriorly (n=15)

- D: no overlapping observed between apex and membranous urethra (n=17)

Results:

Preoperative membranous urethral length:

Median – 14 mm (between 6 and 24 mm)

Postoperative membranous urethral length:

Median – 13 mm (between 4 and 21 mm)

Complete urine continence – 42 patients (73.7%)

1 pad a day – 8 patients (14.0%)

2-3 pads a day – 2 patients (3.5%)

4 pads – 3 patients (5.3%)

Total urine incontinence – 2 patients (3.5%)

Conclusion: Taking into consideration anatomical patterns of the urethral sphincter visualized by modern imaging methods, retaining the maximal length of the membranous urethra and shape of the prostate apex, sparing neurovascular bundles during RPE significantly improves the probability of saving the urine continence function.

UP.667

Evaluation of the Transobturator Male Sling in the Treatment of Stress Urinary Incontinence after Prostate Surgery

Chavez Roa C, Resel Folkersma L, Parra Ayala F, Ciappara Paniagua M, Moreno Sierra J
Hospital Clinico San Carlos, Madrid, Spain

Introduction and Objectives: To evaluate the effectiveness of AdVance® transobturator sling in the treatment of stress urinary incontinence (SUI) after prostate surgery.

Materials and Methods: A prospective, non-randomized, before-after study was conducted in one single institution. Inclusion criteria: Patients undergoing placement of the AMS AdVance® transobturator sling for SUI after prostate surgery. The severity of SUI was assessed by 24 hours pad test, and the International Consultation on Incontinence Questionnaire, Short Form (ICIQ-SF). Conventional urodynamic studies, retrograde cystourethrogram and flexible cystoscopy was performed. "Cure" was defined as the absence of use of the diaper, and improvement was defined as the use of just one diaper at day. The variables studied were age, BMI, ICIQ-SF, urodynamic adverse conditions, prior radiation therapy and prior treatment of incontinence. Statistical analysis: Student t test and Pearson's chi-squared test. Software SPS 15.0.

Results: A total of 60 patients were included, 34 robotic, 9 laparoscopic, and 9 open radical prostatectomies, 6 by TURP, and other 2 by transcapsular adenomectomy. Five patients received salvage radiotherapy and 2 with previous surgery for SUI (ProACT). Their mean age was 69.56 years (SD 6.35). Mean BMI of 27.36 (SD 2.63). Median 24-hour pad test was 356g (range 40-825g). Twenty four patients had detrusor overactivity and 27 underactivity (6 with acontractile detrusor). Median follow-up was 23 months. The cure rate was 78.3%, and median ICIQ-SF improved significantly from 18 (range 11-21) to 2 (range 0-21). The failure rate was 8.3%. None of the patients with acontractile

detrusor had post void residual. For patients receiving radiotherapy cure rate was 40%. There were no intraoperative complications, and postoperative complications appeared in 30% of cases (temporal acute urinary retention in 25%, and short temporal perineal pain in 6.6%).

Statistical analysis showed that the severity of SUI was not associated with the success rate ($p = 0.068$), nor with the other parameters assessed.

Conclusion: The transobturator sling is a safe and effective procedure in patients with SUI after prostate surgery.

UP.668

Quality of Life after AUS Implantation Including Urinary, Sexual, and Bowel Functions

Veliev E, Golubtsova E, Tomilov A
Russian Medical Academy Postgraduate Education, Moscow, Russia

Introduction and Objectives: As urinary incontinence is not directly life threatening, the main goal of surgical treatment of incontinence is to improve the quality of life (QOL). In this study we evaluated health-related quality of life regarding urinary, sexual, and bowel function.

Materials and Methods: A total of 34 patients with severe stress urinary incontinence after prostatic surgery were treated with an AMS 800 artificial urinary sphincter between November 2004 and April 2013. For QOL assessment urinary, sexual, and bowel domains of PC-QOL questionnaire were used before and after AUS implantation. To determine differences between groups Wilcoxon signed-rank test was applied.

Results: The mean age was 67 years and the mean follow-up was 44 months. Urinary function domain answers sum median decreased from 54 points (IQR 51 to 61 points) to 35 points (IQR 30 to 39 points), $p < 0.05$. There were no significant differences before and after implantation in term of sexual function. Bowel function domain answers sum median decreased from 15 points (IQR 13 to 21 points) to 14.5 points (IQR 13.5 to 18.5 points), $p < 0.05$.

Conclusion: AUS implantation significantly improves not only the urinary function, but also bowel function.

UP.669

Preoperative Factors Affecting AUS Implantation Outcomes

Veliev E, Golubtsova E, Tomilov A
Russian Medical Academy Postgraduate Education, Moscow, Russia

Introduction and Objectives: Despite relatively high rate of complications, artificial urinary sphincter (AUS) implantation is still the best option in patients with severe stress urinary incontinence. The aim of the study was to analyze factors influencing the success of implantation.

Materials and Methods: A total of 34 patients

with severe stress urinary incontinence after prostatic surgery were treated with an AMS 800 artificial urinary sphincter between November 2004 and April 2013. Among them 20 (58.8%) required prior surgery due to posterior urethral stricture. In all patients the evaluation of urethral lumen, continence and quality of life was performed. In order to evaluate impact of various factors Spearman's rank correlation coefficient was calculated. The cure was defined as ≤ 1 pad per day, improvement as the reduction of incontinence of more than 50%, and success was defined as the sum of cure and improvement.

Results: The mean age was 67 years and the mean follow-up was 44 months. The mean time after prostatic surgery was 24 months. The cure and improvement rate were 93.6% and 3.1% respectively, thus success rate was 96.9%. There was strong correlation between presence of posterior urethral stricture and preoperative pad number ($R=0.818$, $p<0.05$). Also there was significant correlation between postoperative and preoperative pad number ($R=0.583$, $p<0.05$), postoperative pad number and age ($R=0.655$, $p<0.05$). Moreover, there was significant correlation between complications and time to urinary incontinence treatment ($R=0.344$, $p<0.05$).

Conclusions: Age, pad number and time to urinary incontinence treatment influence AUS implantation outcomes.

UP.670

Virtue® Male Sling for Stress Incontinence: Single Arm, Non-Randomized, Single-Center Clinical Study and 1-Year Follow-Up - A Series of 29 Patients

Bottero D¹, Ferro M¹, Matei D¹, Cioffi A¹, Musi G¹, Melegari S¹, Castaldo L², Hurle R², Graziotti P², de Cobelli O¹

¹Div. of Urology, European Institute of Oncology, Milan, Italy; ²Div. of Urology, IRCCS-Humanitas, Milan, Italy

Introduction and Objectives: Male stress urinary incontinence (SUI) after radical prostatectomy (RP) varies throughout the literature ranging from 8-77%. A recent surgical device for treating postprostatectomy incontinence treatment option includes Virtue quadratic male sling, consisting of a large pore knitted monofilament polypropylene mesh with 2 pre-attached inferior (transobturator) extensions and 2 superior (prepubic) extensions. The aim of this study was to evaluate functional and anatomical outcomes as well as complications, 1 year after the implantation of this new device.

Materials and Methods: Between July 2012 and October 2012, 29 patients treated with Virtue® Male were included in this prospective non randomized study. All patients meeting the following preoperative criteria: history of prostate surgery, symptoms of low to moderate SUI

assessed by clinical examination, urodynamic diagnosis, adequate trial of nonsurgical treatment by pelvic floor exercise or physiotherapy. Patients presenting severe incontinence or previous radiotherapy treatment were excluded from this evaluation. The primary end point of this study is to assess the efficacy and safety of the surgical procedure based on improvement after sling 1-year follow-up implantation in: 24-hour pad weight, daily pad use, PGI-I (Patient's Global Impression), Questionnaire-short form [ICIQSF] PAD 24 hours weight, ICIQ score were analyzed using a fixed effect multivariate analysis of variance for repeated measures taking into account the pre-op, 1 month, 3 months, 6 months and 12 months results as dependent variables and time as repeating factor. For PPD the analysis was performed using the general estimating equation method.

Results: Mean surgery time was 43.7 minutes. Significant improvement of 24-hour pad weight, ICIQ score, daily pad use, PGI-I were

noted between baseline and last follow-up ($P<0.0001$), Figures 1, 2, 3 and 4. No perineal pain or complications that required devices removal have been reported.

Conclusion: Virtue® Male Sling is an effective treatment option for low to moderate postprostatectomy incontinence evidenced by objective improvements in 24-hr pad count, pad weight and patient perceived success via validated questionnaires.

UP.671

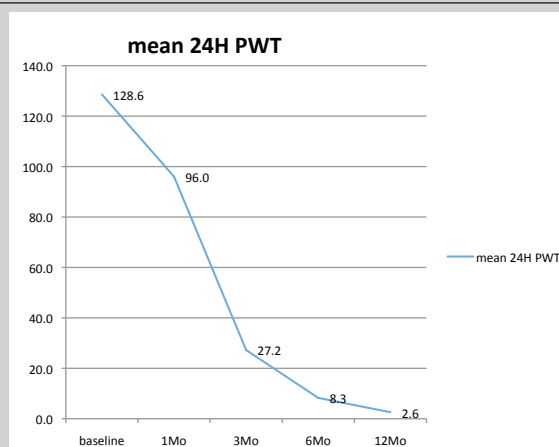
Association between Urethral Hyposensitivity and Development of Symptomatic Urge Incontinence in Patients with Detrusor Overactivity

Ichihayagi O, Nagaoka A, Naito S, Ushijima M, Sakurai T, Yagi M, Takai S, Kawazoe H, Kato T, Tomita Y

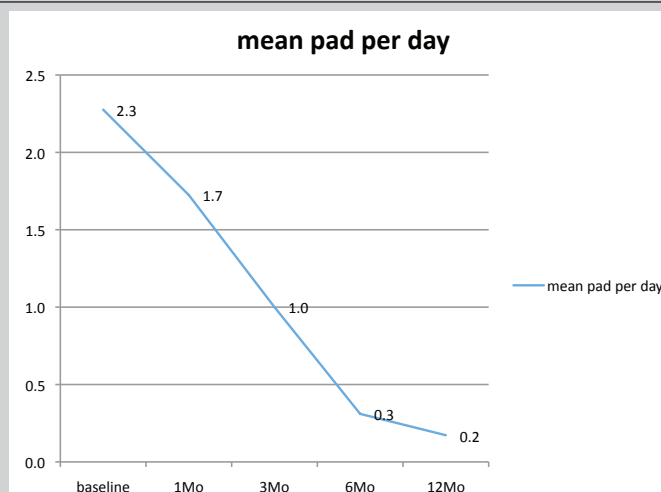
Yamagata University, Yamagata, Japan

Introduction and Objectives: Involuntary detrusor contractions mediated via c-fiber

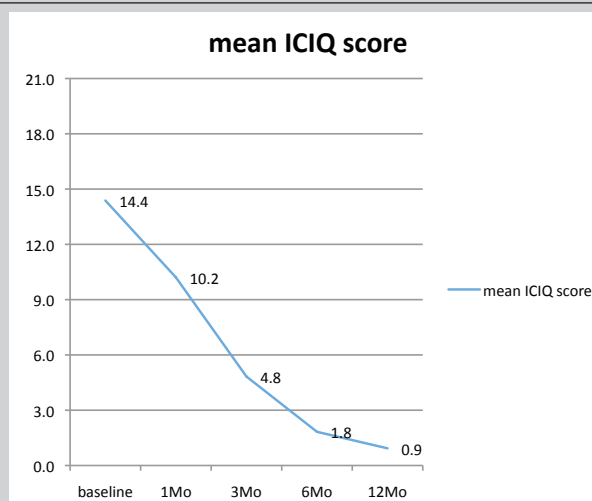
UP.670, Figure 1. Evolution of the pad weight



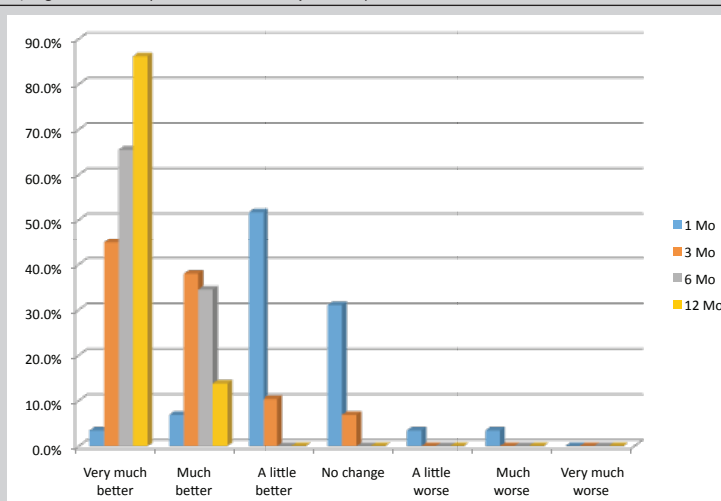
UP.670, Figure 2. Evolution of the number of pads



UP.670, Figure 3. Evolution of the ICIQSF score



UP.670, Figure 4. PGI-I (Patient's Global Impression)



afferents activated in pathological bladder condition would induce urinary urgency and incontinence, consequently leading to wet overactive bladder (wet OAB). However, a clinical role of urethral sensation remains not to be clearly defined in patients with wet OAB. The aim of the present study is to investigate relationships between urethral sensation and urge urinary incontinence (UUI) in patients with detrusor overactivity (DO) by measuring current perception threshold (CPT) in the distal urethra.

Materials and Methods: We retrospectively examined medical archives of a total of 56 consecutive patients with lower urinary tract symptoms (LUTS) who received filling cystometry (CMG) and urethral CPT measurement in our institution. Five patients with stress urinary incontinence only were excluded from the present study. Mucosal sensation of the distal urethra was evaluated as a least CPT of applied

current intensity. Electrical stimulation was given mainly to activate c-fiber in 0.5 ms square pulses at 3 Hz, using a platinum electrode attached with the tip of a 14 Fr balloon catheter inserted transurethraly.

Results: A total of 51 patients met the present selection criteria, constituting 30 males and 21 females. Results of CMG categorized the study patients into three groups, neurogenic bladder with phasic or terminal DO (n=34), idiopathic DO (n=9) and normal CMG (n=8). Median urethral CPTs were 11.3mA, 5.0mA and 2.7mA, respectively, and were significantly different among the three groups (Kruskal-Wallis test, $p<0.05$). The urethral CPT values were not correlated with bladder capacity at first desire to void on CMG (Spearman's correlation coefficient: 0.25, $p=0.10$). Twenty of the 43 patients with DO had UUI as one of chief complaints (symptomatic UUI). None of the eight patients without DO complained of symptomatic UUI. Median CPT

of the symptomatic UUI (12.4mA, n=20) patients was significantly higher statistically than in that of the patients without UUI (5.0mA, n=31, $p<0.05$, Mann-Whitney's U test).

Conclusion: The urethra may become hypo-sensitive independently of bladder sensation as the detrusor gets overactive with neurogenic backgrounds. Afferent disorders from the urethra via c-fiber, together with DO, may have synergic actions to the development of symptomatic UUI.

UP.672

How to Evaluate the Effectiveness of Combination High Dose Anticholinergic Treatment in the Management of Neurogenic Bladder after Spinal Cord Injury (SCI)

Suman D

Indian Spinal Injury Centre, Vasant Kunj, New Delhi, India

Introduction and Objectives: Clinical response in terms of leaks is used to define the adequacy of response to increasing dose or combination anticholinergic treatment of neurogenic detrusor overactivity after SCI. However, a large number of patients may not achieve safe storage pressures despite the treatment. We studied the role of IWT in the evaluation of such treatment.

Materials and Methods: Fifty patients of spinal cord injury with neurogenic detrusor overactivity (NDO) as documented on urodynamics, were put on combination high dose treatment with tolterodine LA 8 mg at bedtime and trospium chloride LA 60 mg, in the morning. After 1 month of treatment, clinical evaluation and IWT was done.

Results: Though leaks per week reduced from 32 to 4 per week, but IWT remained positive in up to 40% of cases suggestive of incomplete suppression of NDO. Interpretation of results: IWT at 1 month may be used as a marker to evaluate the effectiveness of a given treatment. Persistence of high storage pressures may be seen as incomplete response.

Conclusion: If IWT is still positive at 1 month of high dose combination anticholinergic treatment, it may indicate persistent high storage pressures and the need to pursue alternate forms of treatment such as intravesical botulinum toxin.

UP.673

Initial Experience with Botulinum-A Toxin in the Management of Neurogenic Detrusor Overactivity (NDO) in Spinal Cord Injured Patients: An Indian Experience

Suman D

Indian Spinal Injury Centre, Vasant Kunj, New Delhi, India

Introduction and Objectives: We reviewed our initial experience of the off-label use of intravesical botulinum-A toxin injection, in spinal cord

injured patients with refractory incontinence.

Materials and Methods: We studied the records of 50 patients, age range 20-55 years, including 40 male and 10 female patients, with traumatic spinal cord injury, using intermittent self-catheterization. These patients had documented severe NDO and had bothersome leaks despite a high dose of Tolterodine, LA, 8mg. All the patients had undergone cystoscopic intravesical injection of Botulinum toxin (300 units) under general anesthesia, at 30 sites on posterolateral walls, sparing the trigone. All patients had undergone follow-up for a period of one year. Evaluation records, including a three-day bladder diary and the urodynamic study, performed at baseline and at 1 year after the treatment, were reviewed.

Results: The procedure had been uneventful without any side effects. Bladder diary records of 45 patients (90%) showed 0-2 leaks per week at 1 year after treatment compared to 32 leaks per week at baseline. The leaks in the remaining five patients, though present, were also significantly reduced from 32 to 8 per week. Cystometric bladder capacity increased from 240ml at baseline to 420ml at 1 year. Volume at first leakage increased from baseline 80ml to 260ml at 1 year. Maximum detrusor pressures of NDO observed at filling decreased from 100cm at baseline to 35cm at 1 year.

Conclusions: Botulinum-A toxin injections into the detrusor seem to be a safe and effective therapeutic option in spinal cord injured patients with refractory incontinence. A dose of 300 units of botulinum-A toxin seems adequate to manage refractory NDO for a period of one year.

UP.674

Indications and Timing of Revision Surgery in Patients Having Had Multiple Artificial Urinary Sphincters

Frost A, Bugeja S, Andrich D, Mundy A
University College London Hospital, London, UK

Introduction and Objectives: Many patients with an artificial urinary sphincter (AUS) go on to have one or more revisions/replacements over the course of their life. We carried out a retrospective study to evaluate how long the device lasts before it needs to be revised and whether this is reduced with each subsequent implant. **Method and Materials:** A total of 469 patients underwent AUS implantation in a single unit between April 1982 and June 2013. There were 380 males and 89 females, (age 4.3-84.7 years). Those who went on to have more than one sphincter were identified and evaluated retrospectively.

Results: Of 469 patients, 211 (45%) had the AUS explanted after a mean of 68.4 months (range 0.5-365.9 months). Malfunction was the main reason for removal (47%), followed by erosion (42%) and infection (11%). A hundred and forty nine patients (71%) went on to have

a second device implanted. Thirty percent had it removed after a mean of 50.4 months (range 1-207.7 months). In these, erosion was the commonest cause, occurring on average 47.7 months after implantation. Twenty five patients had a third sphincter inserted. Of these, 7 (28%) were explanted, most commonly due to malfunction (57%). In this group the mean time to explantation was 70.8 months however these results are skewed by one patient in whom the third sphincter lasted 254.4 months, significantly longer than the average. Six patients had a fourth device, of whom 2 were explanted after a mean of 22.8 months for malfunction and erosion respectively. One patient went on to have a fifth sphincter which was explanted following erosion at 22.8 months.

Conclusion: Replacement/revision AUS surgery is feasible. The complication rate associated with successive implantations is more or less similar, ranging between 28 and 33%. However, when complications do arise, they will occur earlier with each subsequent sphincter. This is important when counselling patients who have had multiple previous failed artificial sphincters and are being considered for even further revision surgery.

UP.675

Sacral Neuromodulation for the Treatment of Men with Detrusor Overactivity: A Prospective Evaluation

Gulamhusein A, Vyas L, Simmons R, Reid S
Royal Hallamshire Hospital, Sheffield, UK

Introduction and Objectives: Sacral Neuromodulation (SNM) is a well-established treatment option for patients with severe detrusor overactivity (DOA). DOA is more prevalent in women and its use has been well reported, however, little is known on the outcome results in men in whom it is approved by the National Institute for Health and Care Excellence (NICE). We set out to critically evaluate the success of SNM in male patients with refractory DOA in our centre.

Materials and Methods: The validated International Consultation on Incontinence Modular Questionnaire (ICIQ) was used pre and post-operatively (>3 months) to evaluate response. Overall lower urinary tract symptoms (ICIQ-MLUTS), urinary incontinence (ICIQ-UI), quality of life (ICIQ-LUTSQoL) and a bothersome score were elicited. Higher scores signified worse symptoms and QoL.

Results: Eight male patients have undergone

peripheral nerve evaluation (PNE) in our centre. Seven patients proceeded to permanent implantation of the Interstim™ neurostimulator, with one not demonstrating improvement during PNE. Completed ICIQ forms were available for 6 patients as one is in the early post-operative period. Median pre-operative and post-operative scores illustrated in Table 1. Five patients demonstrated significant improvement in all domains including bothersome scores with one reporting no change.

Conclusion: Although only for select patients, SNM appears to be an efficacious treatment option in men with refractory DOA. Overall results in this small cohort of patients show significant improvement in a range of urinary symptoms with no reported surgical complications. Additional patient numbers and long term follow-up is required to evaluate this further.

UP.676

Urodynamic Characterization of Urinary Dysfunction in Adults with Cerebral Palsy

Kalyanaraman B^{1,2}, Nguyen A¹, Katorski J², Elliott S^{1,2}
¹Dept. of Urology, University of Minnesota, Minneapolis, USA; ²Gillette Childrens Specialty Hospital, St. Paul, USA

Introduction and Objectives: Dysfunctional urinary elimination commonly occurs in patients with cerebral palsy (CP). Previous studies have investigated the urodynamic parameters in children with CP. In this study, we characterize the urodynamic findings in adults with CP.

Materials and Methods: This is a single-center, retrospective review of urodynamic studies (UDS) of subjects with CP between the ages of 17 and 40. Only patients who had multi-channel urodynamic tracings for review were included. Patients who had undergone lower urinary tract reconstruction such as bladder augmentation and/or continent catheterizable channel creation were excluded. Patients were classified into 3 groups based on the nature of urinary dysfunction – retention (Ret), incontinence (Inc) and mixed retention and incontinence (RetInc) symptoms. Maximal cystometric capacity (MCC) and detrusor pressure (P_{det}) at MCC were derived from urodynamic tracings. From these values, compliance was calculated as the ratio of MCC to P_{det} at MCC. Impaired compliance was defined as any value less than 20 ml/cm H₂O.

Results: A total of 36 patients, 18 male and 18

UP.675, Table 1.

| | ICIQ-MLUTS 0-52 | ICIQ-LUTSQoL 19-76 | ICIQ-UI 0-21 |
|---------|--------------------|-----------------------|-----------------|
| Pre-op | 20 | 53.5 | 15.5 |
| Post-op | 10.5 | 29 | 5 |

female, were included (mean age 27). Thirty one (83%) had spastic quadriplegia (SQ), 4 had spastic diplegia (SD), 1 had spastic triplegia (ST) and 1 had mixed spastic and dystonic quadriplegia. Eighteen patients (50%) had Inc, 12 (33%) had Ret, and 6 (17%) had RetInc. Median MCC and range (ml) was 340 (59-1099), 552 (195-1007) and 789 (275-1291) in Inc, Ret and RetInc groups, respectively. Median compliance and range (ml/cm H₂O) was 26 (2-350), 49 (3-504), and 22 (9-39) in Inc, Ret and RetInc groups, respectively. In all, 11 patients (5 in Inc and 3 each in Ret and RetInc groups) had impaired compliance.

Conclusion: CP comprises of a spectrum of motor and cognitive deficits. Urodynamic characterization based on symptoms reveals that patients with urinary incontinence have the lowest MCC. Patients with mixed symptoms tend to have high MCC and low compliance, suggesting that incontinence in this group is a result of overflow. Impaired compliance was seen in all 3 groups, thereby demonstrating the need for UDS to identify CP patients at high risk for upper tract injury so that adequate intervention can be instituted at an early stage.

UP.677

Urodynamic Evaluation before and Immediately after Robot-Assisted Radical Prostatectomy

Kadono Y, Ueno S, Yaegashi H, Izumi K, Kitagawa Y, Konaka H, Mizokami A, Namiki M

Dept. of Integrative Cancer Therapy and Urology, Kanazawa University Graduate School of Medical Science, Kanazawa, Japan

Introduction and Objectives: Systematic review and meta-analysis have shown improved recovery of urinary continence after robot-assisted radical prostatectomy (RARP). However, no previous studies have performed urodynamic evaluation of continence status immediately after RARP. We evaluated continence status immediately after RARP, changes in urodynamic parameters before and after RARP, and prognostic factors for postoperative continence status.

Materials and Methods A total of 87 patients with localized prostate cancer who underwent RARP were included. Filling cystometry, urethral pressure profilometry, and abdominal leak point pressure (ALPP) tests were performed before and immediately after RARP. The micturition volumes (MV) and weight of urine loss (UL) in the pads were measured separately for 24 h on the day of urodynamic evaluation. Urine loss ratio (ULR) was calculated by dividing the total urine volume (UL + MV) by MV.

Results: The mean ULR after RARP was 17.8%. ULR and an early continence within 3 months of surgery rate was statistically significant ($r = -0.468$, $P < 0.001$). Nerve-sparing

(NS) surgery significantly affected ULR compared with non-NS surgery. In the comparison between preoperative and postoperative results, the mean maximal cystometric capacity (MCC) and maximal closure urethral pressure (MUCP) decreased from 341 mL and 84.6 cmH₂O to 250 mL and 35.6 cmH₂O, respectively. No urine leakage was observed in ALPP test preoperatively; however, urine leakage was observed postoperatively in 75 patients (86%) with a mean ALPP of 47.7 cmH₂O. Multivariate analysis revealed that, MCC, MUCP, and ALPP after RARP were predictive factors for ULR. Linear correlations were found between ULR and MUCP and between ULR and the ALPP after RARP. NS status and MUCP after RARP ($r = 0.247$, $P = 0.021$) and the ALPP ($r = 0.254$, $P = 0.018$) were significantly correlated.

Conclusion: In urodynamic evaluation immediately after RARP, MCC, MUCP, and ALPP were found to be predictive factors for urinary incontinence. The NS procedure contributed to continence status after RARP. Urodynamic evaluations after RP can objectively evaluate urinary continence status.

UP.678

Electromyographic Selective Study of Periarethral Sphincter for Presurgical Prediction of Success on Male Stress Urinary Incontinence Surgery with Suburethral Slings

Useros Rodriguez E¹, Resel Folkersma L², Salinas Casado J², Hernando Arteché A¹, Garde García H¹, Moreno Sierra J², García Murga J¹

¹Hospital Central de la Defensa Gomez Ulla, Madrid, Spain; ²Hospital Clinico San Carlos, Madrid, Spain

Introduction and Objectives: Transobturator slings that places bulbar urethra back in its natural, intrapelvic position, has been a revolution in the treatment of stress male urinary incontinence. A good function of periurethral sphincter seems to be important for the success of the intervention. The aim of this study was to evaluate the utility of selective electromyography of periurethral sphincter (EPS) as a tool to predict success or failure of the male stress incontinence surgical correction with transobturator slings.

Materials and Methods: Forty seven patients with stress urinary incontinence after prostate surgery were selected between 2004 and 2013. Pre-operative EPS, ICIQ-SF, urethroscopy, pad-test (grams) and body mass index (BMI) were performed in all cases. In EPS potentials morphology, reflect sphincteric response and voluntary control of the sphincter were measured. Sphincter contractility was assessed in urethroscopy. Subjective satisfaction and ICIQ-SF were performed postoperatively. Cure rate was defined as no pad use, improvement as use ≤ 1 pad per day. Success rate was compared in

terms of the parameters of EPS and urethroscopy, using the chi-square. Correlation between EPS and cystoscopy findings was calculated with Kappa correlation index.

Results: Mean age was 68.28 years (SD 5.44), and median BMI of patients was 26.69 (23.7-33.2). Median pad-test weight was 310 (50-626) grams. Mean ICIQ-SF score was 19.68 preoperatively, while postoperatively, it turned to a mean of 2.89. Cure rate was 79% (23/29 patients), with a 10.5% failure rate (3/29) and 10.5% (3/29) of patients whose ICIQ-SF was reduced significantly. No significant correlation was observed for any of the parameters of the EPS relative to the outcome of intervention. Neither did we observe statistical relationship between EPS results and urethroscopy findings. No correlation was observed between endoscopic findings and EPS parameters (Kappa<0.20).

Conclusions: Selective electromyography of periurethral sphincter didn't show to be useful as a tool to predict success on surgical correction of male stress urinary incontinence with suburethral slings.

UP.679

Urodynamic's Role in Mixed Female Urinary Incontinence

Tavares da Silva E, Marques V, Castelo D, Simões P, Rolo F, Mota A
Coimbra's Hospital and University Centre, Coimbra, Portugal

Introduction and Objectives: About one third of women with urinary incontinence have the mixed type. Treatment is generally directed to the predominant component, which may vary depending on how it is determined - clinical or urodynamically. It is important to know the correlation between clinical and urodynamic findings. This work aims to characterize urodynamic's role in the diagnosis of female mixed urinary incontinence (MUI).

Materials and Methods: Retrospective study by consulting processes of female patients who underwent urodynamic study between December 2011 and March 2014 with a clinical diagnosis of MUI.

Results: Our population included 137 women with a mean age of 60.2 years. Regarding clinical predominance, in 43 cases was stress urinary incontinence (SUI), in 45 was urge urinary incontinence (UII) and in 48 cases there wasn't a clear predominance. Urodynamic's were accordant with clinical in 41 cases, while the remaining were reclassified. There was no statistical correlation between the clinical predominance and the urodynamic study result ($p=0.188$). Patients with urethral hypermobility had SUI in the urodynamic study more often ($p=0.007$). Regarding vaginal wall prolapses, the same relationship could not be established ($p=0.101$). Patients with UII in

the urodynamic study were significantly older ($p=0.035$) and had smaller cystometric capacity ($p<0.001$), first sensation volume ($p=0.002$) and Q_{max} ($p=0.026$).

Conclusion: In patients with clinical MUI the correlation between the predominant symptoms and the results of urodynamic studies is low. Clinical data, such as physical examination or voiding diary, may help the diagnostic process. However, when uncertainty exists, urodynamics is a helpful tool.

UP680

Can the Degree of Bladder Trabeculation Be Used as a Predictor of Detrusor Pressure?

Hidas G¹, Wehbi E², Soltani T², Pribish M², Watts B², McAleer I², McLorie G², Khoury A²
¹Pediatric Urology Hadassah, Hebrew University Medical Center, Jerusalem, Israel; ²University of California Irvine, Children Hospital Orange County, Orange, USA

Introduction and Objectives: Bladder trabeculation is a common finding in neurogenic bladder with hostile intravesical pressures and compliance. The exact relationship between the degree of bladder trabeculation (BT) and detrusor pressures is yet to be defined.

Materials and Methods: Spina bifida patients with neurogenic bladder who underwent video urodynamic (VUDS) were studied. Detrusor pressures (Pdet) as well as BT grade were determined for each patient at cystometric capacity. Degree of BT was defined in a 0, 1, 2 scale as previously described and validated. Patients were divided into three groups according to the degree of BT. Median and range of Pdet as well as the proportion of patients with hostile bladder pressures (defined as Pdet >30cmH₂O) were calculated for each group.

Results: The cohort consists of 31 patients, mean age 7.4(±4.4) all patients were treated with anticholinergic and clean intermittent catheterization. Twelve patients had no trabeculation (grade 0) median Pdet was 12.5 (range 0-28). Among the patients, 0% had a hostile bladder ($p<0.001$ when compare to Group 1 and 2). Fourteen patients had mild to moderate trabeculation (Grade1) median Pdet was 30 (range 5-53). Twenty eight percent of patients had a hostile bladder. Five patients had severe trabeculation (Grade 2) median Pdet was 30 (range 0-45). Forty percent of patients had a hostile bladder.

Conclusion: Smooth wall bladder without BT is a good predictor of safe bladder pressures. In this small cohort we couldn't find association between detrusor pressures and the degree of BT.

UP681

Bladder Diameter Ratio as Predictive Instrument in Children with Spina Bifida and Neurogenic Bladder

Hidas G¹, Wehbi E², Soltani T², Pribish M², Watts B², McAleer I², McLorie G², Khoury A²
¹Pediatric Urology, Hadassah and Hebrew University Medical Center, Jerusalem, Israel; ²University of California Irvine, Children Hospital Orange County, Orange, USA

Introduction and Objectives: Elongation of the bladder is a common finding in children with a trabeculated neurogenic bladder with elevated intravesical pressures and reduced compliance. We studied the relationship between the degree of bladder elongation and detrusor pressures to determine if this ratio could possibly reliably be used in lieu of urodynamics in the future.

Materials and Methods: Patients with Spina Bifida (SB) and a neurogenic bladder (NB) who underwent video urodynamic (VUDS) were included in the study. We characterized the degree of bladder elongation as the Bladder Diameter Ratio (BDR). BDR was defined as the ratio of maximal bladder length to width as measured on cystography at its cystometric capacity. We evaluated BDR measurement with estimated elevated bladder pressures (defined as Pdet >30cmH₂O at cystometric capacity) using receiver operator curve (ROC) analysis. Sensitivity and specificity of BDR were also calculated using ROC analysis.

Results: Thirty one SB patients, all on oral anticholinergics and clean intermittent catheterization, were included in the study. The area under the receiver operating characteristic curve (AUROC) was 0.71 for the probability estimate. BDR below 0.7 gave a sensitivity of 0.8 and specificity of 0.5 for a prediction of Pdet over 30cmH₂O.

Conclusion: Bladder diameter ratio is a reasonable predictive instrument for estimating high detrusor pressures in SB children with NB. Further studies are underway to validate the role of BDR using bladder ultrasound images to estimate SB patients' response to treatment and reduce the need for frequent urodynamic studies.

UP682

The Significance of Urodynamic After-Contraactions

Coates J¹, Drinnan M¹, Leonard A², Pickard R¹, Harding C²

¹Newcastle University, Newcastle-upon-Tyne, UK; ²Freeman Hospital, Newcastle-upon-Tyne, UK

Introduction and Objectives: After-contractions (AC) are a poorly understood, urodynamic phenomenon involving a post-micturition detrusor contraction following the complete cessation of urine flow. Much of the existing literature regarding ACs is largely contradictory

especially when examining for their possible clinical significance. Many series comprise small numbers and involve selected populations so opinion remains divided regarding the true relevance of ACs. The aim of this study is to assess the clinical significance of after-contractions from ambulatory urodynamic recordings in symptomatic adult female patients.

Materials and Methods: Ambulatory urodynamic recordings were obtained from symptomatic adult female patients over the period 1998-2014. Patient-reported urological symptoms such as urinary urgency or urine leakage were recorded. Urodynamic measurement of maximum urine flow rate (Q_{max}), voided volume (VV), end-filling detrusor pressure, opening detrusor pressure, maximum detrusor pressure ($P_{det,max}$) and detrusor pressure at maximum flow ($P_{det,Qmax}$) were made and recorded in a database. Gross urodynamic features such as after-contractions, Detrusor Overactivity (DO) and Urodynamic Stress Incontinence (USI) were also noted. The primary objective was to determine the relationship of ACs with any of the commonly measured urodynamic variables, specifically concentrating on clinical correlations between after-contractions and other urodynamic measurements or diagnoses.

Results: A total of 331 consecutive females aged from 16-82 years, with a median age of 50 years were included. We found that after-contractions were exhibited in 122 (37%) patients. Spearman's Rank and Chi-Squared tests have primarily shown a link between DO and ACs ($p = 0.004$). Predictive values of ACs for DO reveal PPV = 61% and NPV = 56%. Further results using Mann-Whitney U tests have shown that ACs are also significantly linked with $P_{det,Qmax}$ ($p = 0.02$) and VV ($p < 0.001$). Specifically increases in $P_{det,Qmax}$ and decreases in VV are associated with increased probability of ACs.

Conclusion: We conclude that after-contractions are associated with several urodynamic variables. Many of these variables will be features of the clinical syndrome of Overactive Bladder (OAB). We therefore suggest a link between after-contractions and OAB. Further prospective studies are necessary to confirm this suggested relationship, but this large retrospective analysis from ambulatory urodynamics deliberately chosen to reproduce normal physiological conditions supports previous smaller studies with similar results.

UP.683

Is There Any Association between Urodynamic Findings and Bladder Capacity in Women with Urinary Incontinence?

Yucetas U, Erkan, Kadihasanoglu M, Karsiyakali N, Cekmen A, Mansuroglu B, Toktas M
 Istanbul Training and Research Hospital, Istanbul, Turkey

Introduction and Objectives: To evaluate the association between urodynamic findings and bladder capacity in women suffer from urinary incontinence.

Materials and Methods: Between 2009 and 2013, 704 women who had undergone urodynamic investigation due to urinary incontinence were included into this analysis and divided into four groups according to urodynamic findings: Group-1 (n=200): detrusor overactivity, Group-2 (n=427): urodynamic stress urinary incontinence, Group-3 (n=26) detrusor overactivity with urodynamic stress urinary incontinence and Group-4 (n=51) normal. All the groups were statistically compared for age, patient symptoms, functional and cystometric bladder capacity. Chi-square and Kruskal-Wallis tests were used for statistical comparisons and $p < 0.05$ was considered as significant.

Results: The comparison of the groups regarding to patients symptoms is provided in Table 1. No statistically significant difference was found among the groups regarding patients symptoms ($p=0.276$) and age ($p=0.637$). However, functional and cystometric bladder

capacity in Group 1 were significantly lower ($p < 0.0001$) (Table 2).

Conclusion: The analysis of the findings of urodynamic studies demonstrated that patients with detrusor overactivity have less bladder capacity.

UP.684

One-Stage, Dorsal Onlay Urethroplasty with Clamshell Ventral Flap in Adults with a History of Hypospadias Repair

Gor R, Brennan M, Diorio G, Metro M
Einstein Medical Center, Philadelphia, USA

Introduction and Objectives: Complications from corrected congenital hypospadias often result in devastating, long-term sequelae. Urethral stricture disease (USD) is the most common, and often most severe, lingering complication of hypospadias repair. Duckett pioneered the island onlay flap urethroplasty for hypospadias that many urologists caring for these patients utilize when appropriate. While its efficacy is validated, complications, including USD, are inherent. Endoscopic management is a temporizing effort. Often, staged procedures are required, prolonging convalescence. We describe

our technique and preliminary experience with one-stage urethroplasty utilizing a dorsal buccal mucosa graft (BMG) onlay, with "clamshell" ventral flap in patients with refractory USD and history of island onlay hypospadias repair.

Materials and Methods: We reviewed records of four men with island onlay hypospadias repair. All patients underwent the titled procedure where the existing island onlay was lifted off its dorsal attachments and reflected ventrally, with effort taken to preserve its blood supply. An appropriately sized BMG was fixed to the attenuated dorsal plate. The mobilized flap was then enveloped over a 14 Fr catheter and three point closure involving flap, BMG, and corporal body was performed. Need for subsequent procedures were recorded. Pre-op and post-op urine flow rates (Q_{max}) were recorded. Additionally, we assessed two-year post-op comparative voiding-related QOL.

Results: Mean age and latency to repair were 43 and 36 years respectively. Mean follow-up was 33 months. Mean stricture length was 4.9cm. All patients had multiple prior dilations and urethrotomies. One patient developed obstructive voiding symptoms necessitating transient self-catheterization and balloon dilation. No surgical revisions were required. Mean pre-op, and two, and 24-month post-op Q_{max} were 5.75, 17.75, and 20.25 ml/sec respectively (Table 1).

Conclusion: We meld the advantages of a pedicled-flap and BMG tissue-transfer urethral reconstruction in a reproducible, one-stage procedure in a difficult to treat population. We report favourable preliminary outcomes. Longer follow-up and larger cohort studies are needed.

UP.683, Table 1.

| | Group 1 | Group 2 | Group 3 | Group 4 |
|-------------------------------|---------|---------|---------|---------|
| Urge incontinence (n=118) | 90% | 0% | 0% | 10% |
| Stress incontinence (n=389) | 0% | 93% | 2% | 5% |
| Mix type incontinence (n=197) | 48% | 33% | 10% | 9% |

UP.683, Table 2.

| | Group 1 (n=200) | Group 2 (n=427) | Group 3 (n=26) | Group 4 (n=51) | p |
|-----------------------------------|-----------------|-----------------|----------------|----------------|---------|
| Age (years) | 51.99±17.74 | 52.14±11.73 | 53.27±14.87 | 49.98±14.13 | 0.6378 |
| Functional bladder capacity (ml) | 175.6±96.86 | 316.8±109.8 | 237.4±120.7 | 302.6±134.5 | <0.0001 |
| Cystometric bladder capacity (ml) | 243.5±121.3 | 445.3±123.1 | 319.8±126.7 | 397.5±157 | <0.0001 |
| <i>Kruskal-Wallis Test</i> | | | | | |

UP.684, Table 1. Outcome Variables

| Patient No | Complications | Revision | Pre-op Q_{max} (mL/sec) | 2-month post-op Q_{max} (mL/sec) | 2-year post-op Q_{max} (mL/sec) | 2-year post-op relative QOL (poor, fair, good, great) |
|------------|--|----------|---------------------------|------------------------------------|-----------------------------------|---|
| 1 | Bulbar stricture requiring anastomotic urethroplasty | No | 6 | 26 | 18 | Great |
| 2 | None | No | 8 | 24 | 28 | Great |
| 3 | None | No | 3 | 13 | 21 | Great |
| 4 | Balloon dilation | No | 6 | 13 | 12 (18 post dilation) | Good |
| Mean | | | | 5.75 | 17.75 | 20.25 |

UP.685**Multi-Institutional Experience with Pediatric Laparoendoscopic Single Site Surgery**

Gor R¹, Long C², Shukla A², Kirsch A³, Perez-Brayfield M⁴, Srinivasan A²

¹Einstein Healthcare Network, Philadelphia, USA; ²The John W. Duckett Center for Pediatric Urology at the Children's Hospital of Philadelphia, Philadelphia, USA; ³Children's Healthcare of Atlanta, Atlanta, USA; ⁴University of Puerto Rico, San Juan, Puerto Rico

Introduction and Objectives: laparoendoscopic single-site (LESS) surgery modifies conventional laparoscopy (CL) by utilizing a single umbilical incision where all working instruments are placed and specimens are removed. Several small pediatric series describe acceptable outcomes for LESS. While data is conflicting regarding pain, estimated blood loss (EBL), and length of stay (LOS), established benefits of LESS are at this point, cosmetic. The present study was designed to review peri-procedural outcomes from a relatively large, multi-institutional series of pediatric urology patients treated with LESS.

Materials and Methods: All LESS cases from three freestanding pediatric referral centers were reviewed. Four fellowship trained pediatric urologists performed all LESS cases between January 2011 and January 2014. Compiled data included age, sex, operative (OR) time, blood loss (EBL), length of stay (LOS), and complications according to the modified Clavien-Dindo classification. Open, Hasson technique was used for peritoneal entry and standard pediatric laparoscopic instruments were used.

Results: Fifty-four patients (mean age 8.4 years, range 4 months to 17 years) underwent 60 procedures: 28 nephrectomies, 7 nephroureterectomies, 3 bilateral nephrectomies, 5 heminephrectomies, 5 renal cyst decortifications, 3 bilateral gonadectomies, 1 Malone ante-grade continence enema (MACE), 1 calyceal diverticulectomy, and 1 ovarian detorsion with cystectomy. Mean OR times for all cases were comparable to available, published literature. Right nephrectomies compared with left had higher EBL ($p=0.015$). Overall mean LOS was 36.2 hours. One patient developed port site hernia requiring surgical repair (Clavien IIIb). One patient developed a superficial port site infection that resolved with a short antibiotic course. One patient required accessory port due to an overlapping liver; we considered this conversion to CL. Cosmetic outcomes were well received by patients and their parents.

Conclusion: The evolution of LESS technology has allowed for a wide variety of cases to be performed with outcomes comparable to CL in the hands of surgeons with laparoscopic experience. We highlight success in patients as young as 3 months of age along with application in areas

not previously described such as cyst decortication, MACE, and calyceal diverticulectomy. With continued technologic innovation, we believe the future of LESS is bright.

UP.686**Single-Institution Comparative Study on the Outcomes of Salvage Cryotherapy versus Prostatectomy for Radio-Resistant Prostate Cancer**

Vora A, Nething J, Marchalik D, Calafell J, Jawed A, Vaish S, Ercole B, Shrivastava A, Muruve N

Dept. of Urology, Cleveland Clinic Florida, Weston, USA

Introduction and Objectives: Although primary treatment of localized prostate cancer provides excellent oncologic control, some men who chose radiotherapy experience a recurrence of disease. Currently, there is no consensus on the most appropriate management of these patients after radiotherapy failure. Curative treatments after radiotherapy failure also pose significant morbidity, including urethral stricture, rectal injury, and urinary fistulae. In this single-institution review, we compare our oncologic outcome and toxicity between salvage prostatectomy and cryotherapy treatments here at Cleveland Clinic Florida.

Materials and Methods: From January 2004 to June 2013, a total of 23 salvage procedures were performed. Six of those patients underwent salvage robotic prostatectomy (AS) while 17 underwent salvage cryotherapy (NM) by two of our high volume fellowship trained urologists. Patients who were being considered for salvage therapy had localized disease at presentation, a prostate-specific antigen < 10 at recurrence, life expectancy > 10 years at recurrence, and a negative metastatic workup. Patients were followed postoperatively to observe for cancer progression, and any toxicity of treatment or complications.

Results: With a mean follow-up of 14.1 and 7.2 months, the incidence of disease progression was 23.5 % and 16.7% after salvage cryotherapy and prostatectomy respectively. The overall complication rate was also 23.5 % vs. 16.7 % with the most frequent complication after salvage cryotherapy being urethral stricture and after salvage prostatectomy being severe urinary incontinence. There were no rectal injuries with salvage prostatectomy and only one recto-urethral fistula in the cohort after salvage cryotherapy. Patients who underwent salvage cryotherapy were statistically older with a higher incidence of hypertension than our salvage prostatectomy cohort.

Conclusion: While recurrences from primary radiotherapy for prostate cancer do occur, there is no consensus on its management. In our experience, salvage procedures were generally safe and effective. Both salvage cryotherapy and salvage prostatectomy allow for adequate cancer

control with minimal toxicity. Our cancer free rates and overall complication rates were lower with robotic salvage prostatectomy. The authors feel that with the advantages of visualization and precision of robotic surgery, in conjunction with the extensive experience of our surgeons here at Cleveland Clinic Florida, robotic salvage prostatectomy may give better outcomes for patients who have radiotherapy failure.

UP.687**Experience of Complication in 800 Cases of Robotic-Assisted Radical Prostatectomy by a Single Surgeon**

Ou Y

Taichung Veterans General Hospital, Taiwan

Introduction and Objectives: To report the complications of 800 cases of robotic-assisted laparoscopic radical prostatectomy (RALP) performed by a single surgeon in Taiwan.

Materials and Methods: Complication (Clavien system) rates were prospectively assessed in 800 consecutive patients undergoing RALP (Group I: cases 1-200; II: 201-400; III: 401-600 and IV: 601-800). Clinical pathway was described below: Patients were allowed to have water and then resumed regular diet on POD 1-2. The drainage tube was removed and intravenous fluid discontinued on POD 1-3. Urine leakage was defined as urine drainage > 100 ml at POD 4. Ileus was defined as inability to resume normal diet at POD 4.

Results: Significantly less blood loss occurred after every 200 cases of RALP (Group I 180 ml, II 119 ml, III 92 ml, IV 91 ml, $p<0.05$). Blood transfusion (BT) incidence was 3.5%, 0.5%, 1% and 0% in Groups I, II, III and IV, respectively. The total complication was 6.75% (54/800) (surgical/medical: 5.25% / 1.5%). Complication rate was 12%, 5.5%, 6% and 3% in Groups I, II, III and IV respectively. Major complications (grade III-IV) were 2.5%, 1.5%, 2% and 0.5% in Groups I, II, III and IV, respectively. The most complication was BT (10/800=1.25%).

Conclusions: Learning curve for every 200 cases of RALP showed significantly less blood loss and BT rate. The keys to prevent complication was pre-operation evaluation meticulously and a dedicated robotic team to do RALP intra-operatively. Early diagnosis and management of complication is paramount in patients have any deviation from the normal postoperative course and clinical care pathway.

UP.688**The Outcome of Pentapecta in 212 Cases of Robotic-Assisted Radical Prostatectomy with Bilateral Neurovascular Bundle Preservation**

Ou Y

Taichung Veterans General Hospital, Taiwan

Introduction and Objectives: To analyze the pentapecta outcome [free complication, continence, potency, negative surgical margin

and free biochemical recurrence (BCR)] of 212 cases of robotic-assisted laparoscopic radical prostatectomy (RALP) with bilateral neurovascular (NVB) preservation performed by a single surgeon in Taiwan.

Materials and Methods: A prospective assessment of outcomes in 212 patients who underwent RALP with bilateral NVB and were followed-up for more than one year. Those patients were classified: low risk: 113 cases, intermediate risk: 74 cases and high risk: 25 cases. We evaluated the perioperative complication, continence and potency function and cancer control with negative surgical margin and free biochemical recurrence). Continence was defined as the use of 'no pads'. Potency was defined as the ability to achieve and maintain satisfactory erections firm enough for sexual intercourse with/without the use of oral PDE5 inhibitors. Positive surgical margin (PSM) was defined as the presence of tumour tissue on the inked surface of the specimen. BCR was defined as two consecutive PSA levels of >0.2 ng/mL after RALP.

Results: Mean age of patient was 60.8 years and mean PSA level was 7.8 ng/mL. The free complication rate was 94.34% (200/212). The continence rate was 98.58% (209/212), potency 86.79% (184/212), negative surgical margin 77.83% (165/212) and free-BCR 92.92% (197/212). The trifecta rate (continence, potency and free BCR) was 80.18% (170/212). The pentapecta rate was 65.09% (138/212).

Conclusions: The pentapecta is a new-standard of outcome for robotic-assisted laparoscopic radical prostatectomy with bilateral NVB. The key to best pentapecta outcome is learning curve and patient selection.

UP.689

Active Surveillance for Prostate Cancer: A Comparison of Japan and the Netherlands
Bokhorst L¹, Alberts A¹, Kakehi Y², Sugimoto M², Hirama H², Venderbos L¹, Bangma C¹, Roobol M¹

¹Dept. of Urology, Erasmus University Medical Center, Rotterdam, The Netherlands; ²Dept. of Urology, Kagawa University Faculty of Medicine, Kagawa, Japan

Introduction and Objectives: Low risk prostate cancer (PCa) is less commonly diagnosed among Japanese men, mainly because of low PSA screening rates. Japanese men with PCa on active surveillance (AS) could therefore be different from Dutch men.

Objective: To compare baseline characteristics and outcome at first repeat biopsy of Japanese and Dutch men with PCa on AS.

Materials and Methods: 380 Japanese and 1590 Dutch men with low-risk PCa were included in the ongoing prospective Prostate cancer Research International: Active Surveillance (PRIAS) study until October 2013. Men were regularly

examined using PSA, DRE, and repeat biopsy and advised to switch to definitive treatment if progression occurred (clinical stage \geq T3, Gleason score (GS) \geq 3+3, \geq 2 cores with PCa at repeat biopsy, PSA-doubling time (PSADT) \leq 3 yr (only after 5 PSA values were available)). Main outcome was GS and number of cores positive at first repeat biopsy (1 yr after diagnosis).

Results: At diagnosis Japanese men had lower prostate volume, lower PSA, more often clinical stage T1c, more biopsy cores taken, and less often 2 cores positive with PCa (Table 1). At first repeat biopsy, Japanese men more often presented a GS \geq 7 (18.4% versus 10.5%, p-value 0.006)

(Table 1). At Multivariable analysis (correction for PSA at diagnosis, prostate volume at diagnosis, positive cores at diagnosis and total cores taken at repeat biopsy) being Japanese was not a statistically significant predictor for GS \geq 7 (odds ratio 1.57; 95% confidence interval 0.93-2.65). Number of cores positive with PCa did not differ significantly between Japanese and Dutch men.

Conclusion: Japanese men on AS more often had GS upgrading at first repeat biopsy compared with Dutch men. After correction for clinical characteristics being Japanese was not a statistically significant predictor of GS upgrading.

UP.689, Table 1. Characteristics at Diagnosis and at First Repeat Biopsy

| | Netherlands | Japan | P-value* |
|---|-------------|------------|----------|
| Characteristics at diagnosis | | | |
| Age (median) | 66.1 | 67.9 | <0.001 |
| PSA (median) | 6.1 | 5.2 | <0.001 |
| Prostate volume (median) | 46.0 | 37.7 | <0.001 |
| PSA density (median) | 0.131 | 0.148 | <0.001 |
| cT-stage (%) | | | <0.001 |
| T1c | 1279 (80.4) | 349 (91.8) | |
| T2 | 311 (19.6) | 31 (8.2) | |
| Number of cores taken (%) | | | <0.001 |
| <10 | 792 (49.8) | 34 (8.9) | |
| 10-12 | 733 (46.1) | 259 (68.2) | |
| >12 | 65 (4.1) | 87 (22.9) | |
| Cores positive (%) | | | .026 |
| 1 | 1065 (67) | 277 (72.9) | |
| 2 | 525 (33) | 103 (27.1) | |
| Total (%) | 1590 (100) | 380 (100) | |
| Characteristics at first repeat biopsy | | | |
| PSA (median) | 6.1 | 6.0 | 0.895 |
| Number of cores taken (%) | | | <0.001 |
| <10 | 379 (40.1) | 8 (4) | |
| 10-12 | 511 (54.1) | 139 (69.2) | |
| >12 | 55 (5.8) | 54 (26.9) | |
| Cores positive (%) | | | 0.512 |
| 0 | 345 (36.5) | 70 (34.8) | |
| 1 | 239 (25.3) | 47 (23.4) | |
| 2 | 171 (18.1) | 34 (16.9) | |
| >2 | 190 (20.1) | 50 (24.9) | |
| Gleason score (%) | | | 0.006 |
| No prostate cancer | 345 (36.5) | 70 (34.8) | |
| \leq 6 | 501 (53) | 94 (46.7) | |
| \geq 7 | 99 (10.5) | 37 (18.4) | |
| Total (%) | 945 (100) | 201 (100) | |
| *Univariate analysis (Mann-Whitney U/ Chi-Square) | | | |

UP.690

Biospy Rates after PSA Testing at the General Practitioner Are Low, Even at High PSA Values

Bokhorst L, Roobol M

Dept. of Urology, Erasmus MC, Rotterdam, The Netherlands

Introduction and Objectives: Different cutoff values of PSA are used to trigger a prostate biopsy. General practitioners (GP) might however be more reticent to refer men for prostate biopsy and use higher cutoff values. Our objective is to study the rates of men referred for prostate biopsy by the general practitioner per PSA range.

Material and Methods: Men included in the European Randomized study of Screening for Prostate Cancer (ERSPC) Rotterdam were studied (n=42376). Data on all PSA tests done by the GP were collected by linkage to the central GP laboratory from 1997 to 2011. PSA tests after the diagnosis of prostate cancer were excluded. A subsequent prostate biopsy (within 1 year) after every PSA test was determined by linkage to the nationwide network and registry of histopathology and cytopathology in the Netherlands (PALGA [Pathologisch-Anato-

(high-risk) prostate cancer and might require further diagnostics more often.

UP.691

Rule-Based versus Probabilistic Selection for Active Surveillance for Prostate Cancer

Venderbos L^{1,2}, Roobol M¹, Bangma C¹, van den Bergh R¹, Bokhorst L¹, Godtman R³, Hugosson J³, Steyerberg E²

¹Dept. of Urology, Erasmus University Medical Center, Rotterdam, The Netherlands; ²Dept. of Public Health, Erasmus University Medical Center, Rotterdam, The Netherlands; ³Dept. of Urology, Sahlgrenska Academy at Göteborg University, Göteborg, Sweden

Introduction and Objectives: Inclusion criteria for active surveillance (AS) for prostate cancer (PC) intend to select men who have histopathological insignificant disease. We explored the effect of applying various sets of rule-based criteria for AS and of using probabilistic selection through a nomogram on the frequency of indolent PC at radical prostatectomy (RP).

Materials and Methods: We studied Dutch and Swedish patients participating in the European Randomized study of Screening for Prostate Cancer (ERSPC) and assessed indolent PCa

(defined as < 0.5 ml) and biochemical progression (BCP) during follow-up in men with T1-T2, Gleason 6 (Gleason pattern ≤3) disease at diagnosis. Men not fulfilling these indolent criteria were marked as having significant PCa. In the various sets of rule-based and nomogram-based AS criteria, we explored whom met our indolent/significant PCa definition and whom experienced BCP. Performances of the Prostate cancer Research International: Active Surveillance (PRIAS), Klotz, Johns Hopkins criteria, and the Steyerberg nomogram are compared. **Results:** Our study cohort consisted of 864 men of whom 619 men were eligible for analyses. The median follow-up amounts to 8.9 years after diagnosis. A total of 37% had indolent PC at RP. Criteria for suitability for AS (PRIAS, Klotz and Johns Hopkins) and for the nomogram increased this number to 51%, 38%, 61% and 42% respectively with 45%, 69%, 22% and 58% of men remaining suitable. Stricter rule-based criteria and higher thresholds of the risk of indolent disease resulted in a higher frequency of indolent disease that was included, but at the cost of a decrease in the number of men suitable for AS (Table 1). These refinements in selection did not have a significant effect on BCP rates (> 0.05) (Figure 1).

UP.690, Table 1. Number of PSA Tests and Subsequent Biopsy Rates per Age and PSA Value

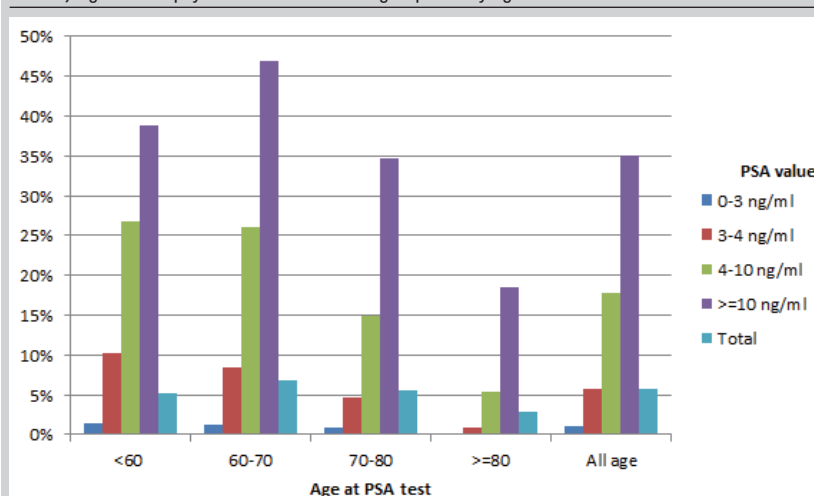
| Age, years | <60 | | 60-70 | | 70-80 | | >=80 | | All age | |
|------------|------------------|------------------------------|------------------|------------------------------|------------------|------------------------------|------------------|------------------------------|------------------|------------------------------|
| | PSA (% of total) | Subsequent biopsy (% of PSA) | PSA (% of total) | Subsequent biopsy (% of PSA) | PSA (% of total) | Subsequent biopsy (% of PSA) | PSA (% of total) | Subsequent biopsy (% of PSA) | PSA (% of total) | Subsequent biopsy (% of PSA) |
| PSA, ng/ml | | | | | | | | | | |
| 0-3 | 1055 (81.9) | 14 (1.3) | 11103 (74.6) | 139 (1.3) | 11856 (65.6) | 102 (0.9) | 2239 (60.6) | 4 (0.2) | 26253 (69.2) | 259 (1) |
| 3-4 | 69 (5.4) | 7 (10.1) | 1164 (7.8) | 99 (8.5) | 1756 (9.7) | 81 (4.6) | 362 (9.8) | 3 (0.8) | 3351 (8.8) | 190 (5.7) |
| 4-10 | 146 (11.3) | 39 (26.7) | 2186 (14.7) | 571 (26.1) | 3657 (20.2) | 547 (15) | 791 (21.4) | 43 (5.4) | 6780 (17.9) | 1200 (17.7) |
| >=10 | 18 (1.4) | 7 (38.9) | 435 (2.9) | 204 (46.9) | 792 (4.4) | 274 (34.6) | 302 (8.2) | 56 (18.5) | 1547 (4.1) | 541 (35) |
| Total | 1288 (100) | 67 (5.2) | 14888 (100) | 1013 (6.8) | 18061 (100) | 1004 (5.6) | 3694 (100) | 106 (2.9) | 37931 (100) | 2190 (5.8) |

misch Landelijk Geautomatiseerd Archief]). Biopsy rates were studied in pre-defined PSA and age groups.

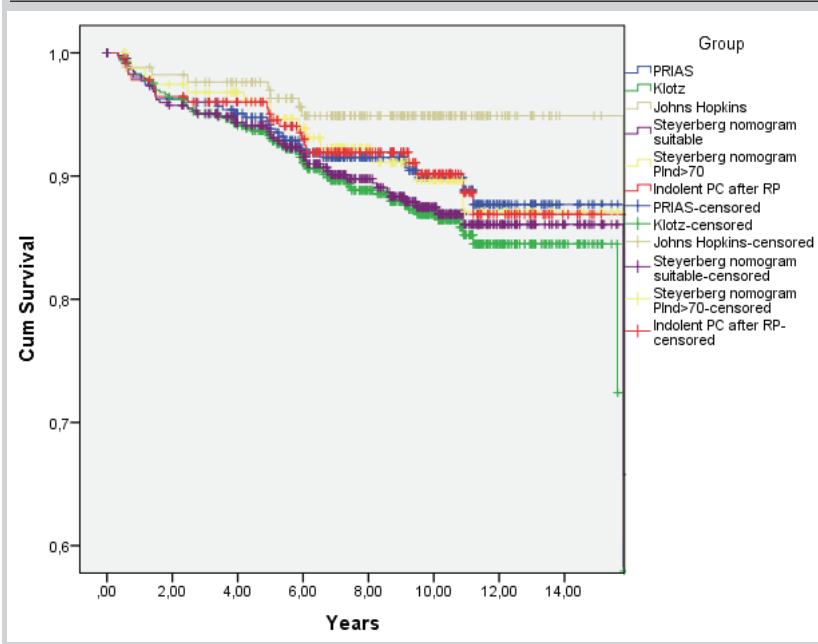
Results: In total, 37931 PSA tests were performed in 14198 men during follow-up (1997-2011); 2190 PSA tests (5.8%) were followed by a subsequent prostate biopsy. Biopsy rates were relatively low in men with a PSA of 4-10ng/ml (17.7%) and even men with a PSA >=10ng/ml (35.0%) (Table 1 and Figure 1). A substantial part of PSA tests (9.7%) were done in men aged 80 or above, of which 2.9% received a subsequent prostate biopsy.

Conclusion: PSA testing at the GP is not uncommon. Interpretation of the PSA value seems to differ from urological practice with only 1/3 of men with a PSA value >=10ng/ml receiving a subsequent prostate biopsy. Men with such high PSA values are at increased risk of having

UP.690, Figure 1. Biopsy Rates after PSA Testing Depicted by Age and PSA Value



UP.691, Figure 1. Time to Biochemical Progression (> 0.2 ng/ml) after Radical Prostatectomy in Men with PC Fitting the PRIAS AS Criteria, Klotz AS Criteria, Johns Hopkins Criteria or a Nomogram Application



MDT. Of these, 18/27 (67%) with a median age of 32 years (range: 19-59 years) were still regarded as having a malignant pathology and underwent an orchidectomy. Histology revealed a malignant pathology in 15/18 (83%). Overall, 18/1552 (1.2%) had an unexpected suspicious SUSS supported at MDT with 15/1552 (1%) having a confirmed malignant pathology.

Conclusion: Our large retrospective study has demonstrated that 1% of men with clinically benign testis lesion will actually have an underlying unsuspected malignant pathology. Therefore, SUSS should be considered in all men presenting with a testis lesion.

UP.693

Post-Percutaneous Nephrolithotomy Infectious Complications: A Prospective Analysis of Risk Factors

Bozkurt I, Degirmenci T, Yonguc T, Arslan B, Kozacioglu Z, Gunlusoy B, Minareci S
Dept. of Urology, Izmir Bozyaka Training and Research Hospital, Izmir, Turkey

Introduction and Objectives: We prospectively analyzed the preoperative and intraoperative risk factors for infectious complications after percutaneous nephrolithotomy (PCNL).

UP.691, Table 1. The Effect of Applying Different Sets of Diagnostic AS Criteria and the Use of a Nomogram for Selecting Indolent PC at RP

| | Suitable (%) | Indolent included (%) | Sens. | Significant included (%) | Spec. | BCP (%) |
|--------------------|--------------|-----------------------|-------|--------------------------|-------|---------|
| Total | 619 (100) | 229 (37) | | 390 (63) | | 82 (13) |
| PRIAS criteria | 354 (57) | 180 (51) | 79% | 174 (49) | 55% | 34 (10) |
| Klotz criteria | 537 (87) | 207 (39) | 90% | 330 (61) | 15% | 66 (12) |
| Hopkins criteria | 171 (28) | 104 (61) | 45% | 67 (39) | 82% | 9 (5) |
| Nomogram | 455 (74) | 193 (42) | 84% | 262 (58) | 33% | 51 (11) |
| Nomogram Plnd > 70 | 161 (26) | 94 (58) | 41% | 67 (42) | 83% | 14 (9) |

Conclusion: Above results show that even when applying the most stringent criteria for both methods (rule-based vs. nomogram) men with histopathologically significant PC are included. We should focus however, on searching for easy to handle AS inclusion criteria with favorable sensitivity/specificity ratios. On the basis of current available evidence, it is thought that MRI might play a substantial role here.

UP.692

Is Scrotal Ultrasound Scan Necessary in Patients with Clinically Suspected Benign Testis Pathology?

Wardak S, Masood K

Dept. of Urology, University Hospitals of Leicester, Leicester General Hospital, Gwendolen Road, Leicester, UK

Introduction and Objectives: Testes lesions

are a common occurrence with the vast majority being of benign pathology. Scrotal Ultrasound scans (SUSS) are routinely performed to exclude an underlying malignant pathology. However, to determine whether this is necessary in the absence of clinical suspicion, we performed a retrospective study examining SUSS reports at our Institution.

Materials and Methods: Between January 2012 and December 2013, a total of 3298 men with a median age of 37 years (range: 16-60 years) underwent a SUSS performed by a mixture of radiographers and radiologists. Of these, 1552/3298 (47%) with a median age of 36 years (range: 16-60 years) were included in our study; 1746 (53%) were excluded, as they were thought to have an infective, malignant or traumatic testis.

Results: Twenty seven out of 1552 (1.7%) had a sinister SUSS and were referred to Urology

Materials and Methods: Between January 2011 and November 2013, a total of 303 patients underwent PCNL. The demographic data and perioperative variables were prospectively recorded. The preoperative urine culture (UC), intraoperative stone culture (SC) and renal pelvic urine culture (RPUC) were obtained from all patients. All patients were followed for signs of systemic inflammatory response syndrome (SIRS) and sepsis.

Results: Of all 303 patients, 87 had recurrent urinary tract infection history, 21 had preoperative nephrostomy and 80 had past ipsilateral renal surgery. Mean stone burden was 609 mm² (range 150 to 2400). In 39 (12.9%) of the patients ≥2 tracts were required whereas in 264 (87.1%) only one. Mean operative time was 119 minutes (range 40 to 240). After PCNL residual fragments were detected in

UP.693, Table 1. Patients' Characteristics and Perioperative Variables

| | SIRS (-) n=220 | SIRS (+) n=83 | P value |
|--|----------------|---------------|----------|
| Age (years) | 46.9 ±12.1 | 45.2 ±13.7 | 0.18* |
| Body mass index (kg/m ²) | 27.4 ±5.1 | 25.9 ±4.7 | 0.523* |
| Stone burden (mm ²) | 568.1 ± 357.4 | 720.9 ±438.9 | 0.001* |
| Operation time (min) | 113.2 ±38.7 | 135.2 ±35.9 | 0.000* |
| Fluoroscopy time (min) | 93.4 ±62.1 | 104.6 ±71.2 | 0.464* |
| Previous ipsilateral renal surgery (n) | 87 | 34 | 0.822** |
| Preoperative nephrostomy (n) | 15 | 6 | 0.9** |
| Recurrent urinary tract infection (n) | 53 | 35 | 0.002** |
| Tract number ≥2 (n) | 36 | 24 | 0.014** |
| Transfúzyon (n) | 15 | 15 | 0.003** |
| Residual stone (n) | 76 | 36 | 0.156** |
| Struvite stone (n) | 2 | 12 | 0.000*** |
| Positive preoperative culture (+) (n) | 21 | 12 | 0.221** |
| Positive renal pelvic culture (+) (n) | 15 | 7 | 0.629** |
| Positive stone culture (+) (n) | 27 | 10 | 0.958** |
| * t-test | | | |
| ** chi-square | | | |
| *** Fischer's exact test | | | |

112 patients (37%). After the procedure, 31 patients (10.2%) needed blood transfusion. In 83 patients (27.4%) SIRS was developed, and of these patients, 23 (7.6%) were diagnosed as sepsis. At univariate analysis stone burden, operation time, recurrent urinary tract infection history, multiple tract, struvite stone, blood transfusion were found to be predictors of SIRS. Additional to these factors sepsis was found to be associated with fluoroscopy duration, past ipsilateral renal surgery, residual stones and positive preoperative urine culture. By multivariate analysis, presence of infection stone ($p=0.01$), stone burden ($p=0.009$) and recurrent urinary tract infection ($p=0.04$) were associated with SIRS development.

Conclusion: Number of tracts, receipt of blood transfusion, stone size, operation time, recurrent urinary tract infection history and struvite stones are identified as the key risk factors for SIRS after PCNL.

UP.694

The Administration of Any Additional Bacillus Calmette-Guérin beyond Induction Therapy Improves Overall Survival in High-Grade T1 Bladder Cancer

Smith Z¹, Jayarajan S², Sterling M¹, Canter D³, Issa M³, Dobbs R³, Malkowicz S¹, Guzzo T¹

¹Div. of Urology, Hospital of the University of Pennsylvania, Philadelphia, USA; ²Dept. of Surgery, Temple University Hospital, Philadelphia, USA; ³Dept. of Urology, Atlanta Veterans Affairs Medical Center and Emory University School of Medicine, Atlanta, USA

Introduction and Objective: High-grade T1 (HGT1) bladder cancer (BCa) represents a challenge for clinicians in that the risk of disease progression must be weighed against the morbidity of early radical cystectomy. Intravesical Bacillus Calmette-Guérin (BCG) has proven the most effective treatment in preventing recurrence and progression of high-risk non-muscle-invasive bladder cancer (NMIBC). The addition of BCG maintenance therapy is associated with further benefit. While a full BCG maintenance course is often difficult for patients to complete, we sought to describe the impact of any BCG administration beyond induction therapy on the survival of patients with an initial presentation of HGT1 BCa.

Materials and Methods: We queried the NMIBC databases that have been established independently at the Atlanta Veterans Affairs Medical Center and the Hospital of the University of Pennsylvania to identify patients who presented with HGT1 as their initial BCa diagnosis. Demographic, clinical, and pathologic variables as well as overall survival (OS), recurrence-free survival (RFS), and progression-free survival (PFS) were examined. Categorical variables were analyzed using Fisher's exact and Pearson's chi-squared tests. Survival analyses were performed by Kaplan-Meier via Logrank test.

Results: A total of 224 patients were identified; 199 (88.8%) and 201 (89.7%) were male and non-African American, respectively. Mean patient age was 66.5 years. Also, 203 (90.6%) of the patients presented with isolated HGT1 disease while 21 (9.4%) patients presented with

HGT1 and concomitant carcinoma in-situ. Induction BCG was utilized in 174 (77.7%) patients, with 110 (63.2%) of these patients receiving some degree of BCG maintenance therapy. The 5-year and 10-year OS for patients who received only an induction course of BCG (58.5% and 48.7%) were poorer than those that received induction therapy plus any degree of maintenance therapy (84.8% and 74.0%) ($p=0.0234$). Differences in RFS and PFS were not significant between groups.

Conclusions: In our large cohort of patients with primary HGT1 BCa, we found that the administration of any additional BCG after induction therapy yields a significant impact on OS. This study reaffirms the importance of continuing with additional BCG after completion of induction therapy.

UP.695

The Relationship between Lower Urinary Tract Symptom and Depressive Symptom

Moon H¹, Lee J¹, Park S¹, Nam J², Kim S², Choi B²

¹Dept. of Urology, College of Medicine, Hanyang University, Seoul, South Korea; ²Dept. of Preventive Medicine, College of Medicine, Hanyang University, Seoul, South Korea

Introduction and Objectives: Depression disorder is a representative psychological disease, with a high prevalence in the world. Depressive symptom is often accompanied by other chronic diseases. Recent research results showed depressive symptoms may affect symptoms of benign prostatic hyperplasia. This investigation was conducted a community based cross-sectional study to evaluate the correlation between LUTS and depressive symptom.

Materials and Methods: The survey was carried out during 4 periods, August 2009, August 2010, August 2011, and August 2012 in a rural community area. Two validated questionnaires were used to examine the LUTS and depression symptoms, the International Prostate Symptom Score/Quality of Life (IPSS/QoL) and Korean version of Center for epidemiological studies-depression scale (CES-D-K). All participants were over 40 years old, and completed the IPSS/QoL and CES-D-K. If CES-D-K scores were over 16 points, then the patients were classified to the depressive symptom group. There were also interviewed about socio demographic and behavioral factors.

Results: A total of 711 men were included in the study, and a total 35 cases (4.92%) were classified as a depressive symptom. Classifying in accordance to the LUTS severity, there was a significant increase in depressive symptom prevalence rate as LUTS became severe ($p=0.002$) (Table 1). All of 7 IPSS factors showed a significant correlation with a depressive symptom. Among the factors, the urgency factor (OR=1.308, 95% CI: 1.114-1.536)

UP.695, Table 1. Prevalence of Depressive Symptoms According to Lower Urinary Tract Symptom

| | DEP (n=35) | | non-DEP (n=676) | | P-value | P for trend |
|-----------------|---------------|--------|--------------------|--------|---------|-------------|
| LUTS severity | | | | | | |
| Mild (0-8) | 13 | (2.8) | 455 | (97.2) | 0.002 | <0.001 |
| Moderate (8-19) | 15 | (8.2) | 168 | (91.8) | | |
| Severe (20-35) | 7 | (11.7) | 53 | (88.3) | | |

Abbreviation; DEP: depressive symptom, LUTS: lower urinary tract symptom.
Value is expressed as %.
Result is adjusted for age.
P-value and P for trend were calculated using Cochran-Mantel-Haenszel test for categorical variables.

and straining factor (OR=1.309, 95% CI: 1.115-1.537) showed relatively high risk on depressive symptom, respectively significant. However, QOL factor (OR=0.997, 95% CI: 0.771-1.288) was not significant statistically. Categorized into voiding symptom and storage symptom within LUTS, the severity of voiding symptom was closely related to the cause of depressive symptom (OR 2.661, 95% CI: 1.267-5.588). In contrast, no significant relationship could be found between storage symptom and depressive symptom.

Conclusion: Men with severe LUTS have a higher risk of suffering from depressive symptom. Especially in the case of LUTS, the severity of voiding symptom aggravates depressive symptom. Therefore, such patients showing more voiding symptom, should be treated more actively.

UP.696

Preoperative, Postoperative Renal Function Test Using TC 99m-DTPA following Laparoscopic and Robot-Assisted Partial Nephrectomy at Short Warm Ischemic Time

Kim J¹, Hong S¹, Kim K¹, Choi Y¹, Bae W¹, Cho H¹, Lee J¹, Kim S¹, Hwang T¹, Park H²

¹Dept. of Urology, College of Medicine, The Catholic University of Korea, Seoul, South Korea; ²Dept. of Urology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, South Korea

Introduction and Objectives: Nephron sparing surgery is considered the standard of treatment for most patients with renal mass. We evaluate preoperative, postoperative glomerular filtration rate (GFR) of patient undergoing laparoscopic partial nephrectomy (LPN) and robot-assisted partial nephrectomy (RAPN) at short warm ischemic time (WIT).

Materials and Methods: We included 42 patients of short WIT (<30 min) who underwent LPN (n=34) and RAPN (n=8) from November 2011 to February 2013. Technetium Tc 99m-diethylenetriaminepentaacetic acid (TC99m-DTPA) to determine GFR was performed before and 3 month after operation. We analyzed TC 99m-DTPA scintigraphy GFR both operated kidney and contralateral kidney. GFR

was normalized by body surface area (BSA) and the GFR using serum creatinine was also estimated a modified Cockcroft-Gault formula adjust for BSA (CG-GFR).

Results: Median WIT was 23.1±5 minutes. Preoperative, postoperative serum creatinine level did not show a difference (0.9±0.2mg/ vs. 0.9±0.3mg P=0.521). Reduction in GFR of operated kidney and increasing GFR of contralateral kidney showed a significant difference (54.3±13ml/min/1.73m² vs. 43.7±13.8ml/min/1.73m² P=0.000, 50.17±8.1 ml/min/1.73m² VS 59.2±14.7 ml/min/1.73m² P=0.001 respectively). Preoperative and postoperative GFR of total kidney showed difference (109.4±21.9ml/min/1.73m² vs. 102.2±24.8ml/min/1.73m² P=0.026), but preoperative and postoperative CG-GFR of total kidney was increased but not show statistical difference (88.6±20.2ml/min/1.73m² vs. 93.2±26ml/min/1.73m² P=0.073).

Conclusions: Our result showed that short WIT cannot prevent decreasing renal function of operated kidney, and contralateral kidney compensates decreasing renal function of operated kidney. Because of declining postoperative GFR of total kidney, possible to preserve the kidney is considered better. We identified that partial nephrectomy has an important role in preserving the renal function measure by TC 99m-DTPA. But the limitation of this study

was the small enrolled numbers and short follow-up periods.

UP.697

Enzalutamide in Patients with Metastatic Castration Resistant Prostate Cancer Previously Managed with Docetaxel and Abiraterone: A Multi-Center Analysis

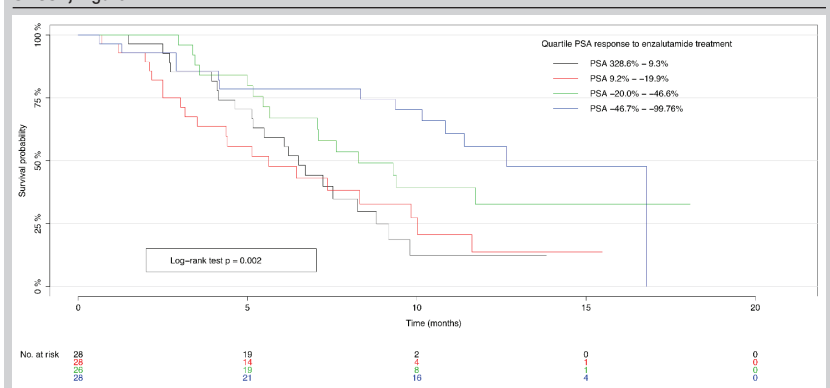
Brasso K¹, Thomsen F¹, Røder M¹, Schrader A², Schmid S³, Lorente D⁴, Retz M³, Merseburger A⁵, von Klot C⁵, Boegemann M⁶, de Bono J⁴

¹Dept. of Urology, Copenhagen Prostate Cancer Center, Rigshospitalet, University of Copenhagen, Denmark; ²Dept. of Urology, Ulm University Medical Center, Ulm, Germany; ³Urologische Klinik und Poliklinik, Technische Universität München, Munich, Germany; ⁴Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, Sutton, UK; ⁵Dept. of Urology and Urological Oncology, Hannover Medical School, Germany; ⁶Dept. of Urology, Muenster University Medical Center, Muenster, Germany

Introduction and Objectives: The anti-tumour activity of enzalutamide in post-chemo metastatic CRPC patients following progression on abiraterone is still at debate. We examine the effect of enzalutamide in patients progressing following taxane-based chemotherapy and abiraterone.

Materials and Methods: Post-chemo mCRPC patients who participated in four European compassionate use programs of enzalutamide were included. The primary endpoint was overall survival (OS). Secondary endpoints were association between OS and PSA response, patient characteristics, and progression free survival (PFS), respectively. Kaplan-Meier survival analysis and Cox proportional hazard analysis were performed.

Results: The study includes 137 patients, who prior to enzalutamide had progressed following a median of 8 cycles of docetaxel and 7 courses of abiraterone. Median time on enzalutamide was 3.2 months. Median overall survival from commencing enzalutamide was 8.3 months (95% CI 6.8-9.8). Only 45 (38%) and 22 (18%) of the patients had a PSA decline greater than 30%

UP.697, Figure 1.

and 50%, respectively. Survival was significantly higher in the patients responding with the top 25% PSA response. Patients with a 30% PSA decline or higher had a significantly improved survival compared to patients with a PSA response <30% (11.4 months vs. 7.1 months, $p=0.001$, respectively). Likewise, a PSA response >50% was associated with an improved survival (12.6 vs. 7.4 months, $p=0.007$, respectively). Poor performance status and low hemoglobin associated negatively with overall survival. The major limitations of this study include the retrospective design, and lack of standardized imaging follow-up.

Conclusion: Enzalutamide exert a modest biochemical response in post-chemotherapy mCRPC patients previously treated with abiraterone. A PSA response during enzalutamide treatment seems to be associated with longer survival probability.

UP.698

Isolated Tuberculous Epididymo-Orchitis Mimicking Testicular Cancer: Review of Six Cases

Yonguc T, **Bozkurt I**, Yarimoglu S, Degirmenci T, Kozacioglu Z, Gunlusov B
Dept. of Urology, Izmir Bozyaka Training and Research Hospital, Izmir, Turkey

Introduction and Objectives: To review the isolated tuberculous epididymo-orchitis in 6 cases that underwent radical inguinal orchiectomy (RIO) procedure because testicular cancer was suspected.

Materials and Methods: Between 2008 and 2014, 79 patients with scrotal mass were treated by RIO. Histopathological diagnoses of the 6 patients among 79 patients were granulomatous epididymo-orchitis. The age range was 47-73 years. The most common symptom of these patients was acute enlargement of the hemiscrotum. There were no signs of inflammation so they were assumed to be solid scrotal masses. None of them had a medical history of tuberculosis. Location was right scrotum in 4 patients and left scrotum in 2 patients. Physical examination of the 6 patients was similar; the scrotal contents were enlarged with loss of definition between the epididymis and testis. Palpation of the testis was painful in 4 patients and painless in 2 patients. Color doppler ultrasonography of the scrotum revealed homogeneous or heterogeneous hypoechoic lesions and could not differentiate them from testicular cancer. Tumor markers such as alpha-fetoprotein and beta-human chorionic were all within normal limits. Routine blood tests, including hemoglobin, hematocrit, liver function tests and coagulation studies were within normal limits. Human immunodeficiency virus (HIV) serology was negative on patients. No pulmonary evidence of tuberculosis on the chest radiograph. Also Fluorescent microscopic examination of urine

was negative for acid-fast bacilli.

Results: Surgical exploration was performed through an inguinal incision on all patients. After clamping the spermatic cord, scrotal contents were palpated through the incision but could not differentiate from testicular cancer. Inguinal orchiectomy was proposed and implemented with the consent of patients. And testes samples were sent to pathological examination and Lowenstein-Jensen culture. Later mycobacterium tuberculosis was grown on Lowenstein-Jensen culture from the testes samples after eight weeks on the six patients.

Conclusion: The correct diagnosis of the isolated tuberculous epididymo-orchitis is difficult in general urological clinics. Surgical procedures can be necessary for the differential diagnosis from testicular cancer.

UP.699

Simple Renal Cyst Sclerotherapy with Aethoxysklerol: A 5-year Experience of a Single Institution

Yonguc T, **Bozkurt I**, Yarimoglu S, Degirmenci T, Kozacioglu Z, Gunlusov B
Dept. of Urology, Izmir Bozyaka Training and Research Hospital, Izmir, Turkey

Introduction and Objectives: To evaluate the efficacy and safety of aethoxysklerol sclerotherapy in the treatment of simple renal cysts.

Materials and Methods: Between 2008 and 2013, 86 patients (44 men, 42 women) with 89 Bosniak type-1 simple cysts were treated by ultrasonography (US)-guided percutaneous aspiration and injection of aethoxysklerol solution. Mean age was 67.2 (range, 42-82) years. The follow-up period was between 12-76 months. The symptoms related to renal cyst were flank pain in 37 (43%), hematuria in 6 (6.9%) and a palpable mass in 4 patients (4.6%). The remaining renal cysts were found incidentally on abdominal imaging. The sites of the cysts were; left in 45 (50.5%), right in 41 (46%) and both left and right in 3 patients (3.4%). Location of the cyst upper, middle and lower were 43 (48.3%), 14 (15.7%) and 34 (38.2%) respectively. Mean cyst size was 8.3 cm (range, 5-14), and the mean volume on presclerotherapy images was 240 ml (range, 60-1370). US and/or CT scan was obtained from all patients. Puncture site was infiltrated with lidocaine; 18 G puncture needle under US guidance was used for initial cyst puncture. The first 10 ml of aspirate was sent for cytological and biochemical examination. Subsequently, all fluid was aspirated and 2 ml aethoxysklerol 1% per 100 ml of cystic fluid was administered. Patients were evaluated at 3rd month after procedure and annually afterwards. Success was defined as complete or partial when there was > 90% reduction or between 50-90% reduction in cyst size, respectively. Failure was defined < 50% reduction.

Results: The cytology examination was negative for neoplastic cells in all patients, and biochemical analysis was similar to the plasma. The mean volume of aspirated cyst fluid was 220 ml (range, 40-1150). The complete success was found in 39 cysts (43.8%), partial in 18 cysts (20.2%) and failure in 32 cysts (35.9%). Minor complications such as nausea, pain, microscopic hematuria were observed in 7 patients (8.1%). There was no major complication.

Conclusion: The aethoxysklerol sclerotherapy in the treatment of simple renal cysts effective and safe.

UP.700

Forgotten DJ Stent: A Nagging Problem

Gupta R¹, Mahajan A1, Gupta S²
¹Dept. of Urology, Government Medical College, J&K, India; ²ASCOMS, J&K, India

Introduction and Objectives: Ureteral stents have become integral part of urology practice. With its wide spread use by urologists and general surgeons there is always a probability of forgotten stent. This stent encrustation can be a cause of significant morbidity. The forceful removal of the encrusted stent can result into stent fragmentation, ureteral tears, and rarely, ureteral avulsion. We review our experience and algorithm of tackling such stents safely.

Methods and Material: Between Jan 2009 until Dec 2013, 35 forgotten DJ stents were tackled at our unit. Patient with forgotten stent was defined as one who did not follow-up for the stent removal within the stipulated period and presented once they were symptomatic or had urinary sepsis. Prior to the definitive management, all patients were subjected to, biochemistry, radiological investigations and a urine culture sensitivity so as to assess degree of encrustations and active infection.

Results: Average age of presentation was 39.8 ± 4.3 years. Eighty five percent of the patients were male (30/35) and average indwelling time was 11 ± 5.5 months. Stents were retrieved endourologically in 33/35 patients. Seventeen patients required only CPE, seven patients required PCNL (for proximal renal calculus), and ureteroscopy with pneumatic lithotripsy was done for six patients (stent encrustation) and three patients required cystolithotripsy (distal end calculus). Two patient required nephrectomy as there renal unit had become nonfunctional.

Conclusions: DJ stent should be used judiciously as forgotten stents are a reality even today. Detailed preoperative assessment and prompt management goes a long way in reducing the morbidity of forgotten stent.

UP.701

Initial Results of Surgeon Tailored Mesh for Stress Urinary Incontinence

Bajramovic S, Junuzovic D

Clinical Centre University Sarajevo, Bosnia and Herzegovina

Introduction and Objectives: To evaluate the operative costs, surgical efficacy and adverse events associated with surgeon-tailored polypropylene mesh (STPM) in the treatment of stress urinary incontinence (SUI).

Materials and Methods: Between 2011-2013, we have done 30 midurethral slings (TOT) for stress urinary incontinence by self tailored polypropylene mesh. Concomitant surgeries were excluded. Success rate was measured in terms of overall urinary incontinence, which required a negative pad test, no urinary incontinence, a negative cough and Valsava stress test, no self reported symptoms, no retreatment for the condition. We have also assessed postoperative urge incontinence, voiding dysfunction, and adverse events.

Results: Mean follow-up was 18±3 months. Objective cure rate was 82.6%. The mean operative time was 45 min (range 30-55 min), mainly due to tailoring the mesh. No bladder or urethral injuries and no vascular or neurological complications were encountered.

Conclusion: STPM may represent a cost-effective alternative option for stress urinary incontinence treatment. Initial results show safe, efficacious, and economic surgical procedure for SUI.

UP702

Use of Firefly Fluorescence Imaging Technology for Robotic Assisted Partial Cystectomy and Ureteral Reconstruction **Rodriguez A**

Samaritan Medical Center, Watertown, USA

Introduction and Objectives: Firefly fluorescence imaging technology has been used during robotic assisted urological procedures, specifically for partial nephrectomies. We report on the use of this technology for robotic assisted partial cystectomy for bladder tumors and ureteral reconstructive procedures.

Materials and Methods: Firefly fluorescence imaging technology has been used since November 2012 at our institution. It has been used most commonly for robotic assisted partial nephrectomies. We have applied this technology during partial cystectomies and ureteral reconstructive procedures. During these procedures we either do a flexible cystoscopy (for a partial cystectomy) or a flexible ureteroscopy (for a ureteral reconstruction). Once the lesion is identified, we point at it endourologically, and turn-on the Firefly technology on the robotic console. This technique allows us to visualize the endoscopic light in green color, and identify the exact point where the lesion is situated. Patient demographics, peri-operative outcomes and complications were analyzed.

Results: Two patients were performed using this technique. In one case, the patient (61-year

old male, BMI of 31) had a double right ureteral stricture above the iliac vessels that had been dilated and stented multiple times. A flexible ureteroscopy was used to identify the areas of stricture. Firefly technology was used to define where the resection of the ureter was going to be performed. For this case, a robotic assisted boari flap was performed. Robotic console time was 170 min, estimated blood loss was 50 cc, hospital stay was 3 days, and JP drain time was 2 days. In the second case, the patient had a bladder tumor in the dome compatible with either a bladder adenocarcinoma versus a urachal cyst remnant. A flexible cystoscopy was performed during the robotic assisted partial cystectomy plus urachal resection. Robotic console time was 80 min, estimated blood loss was 25 cc, hospital stay was 2 days, and JP drain was 2 days. Clear-cut borders of resection were identified during both procedures. At 3 months (mean time) follow-up, there were no complications.

Conclusions: Firefly fluorescence imaging technology to assist in localizing a lesion in the bladder or the ureter, proved to be effective during both the robotic assisted partial cystectomy and the ureteral reconstruction.

UP703

Desire for Fertility among Cancer Patients using Tyrosine Kinase Inhibitors (TKIs)

Hussein A^{1,2}, Lishko P³, Katz P⁴, Smith J^{1,4,5}

¹Dept. of Urology, University of California, San Francisco, USA; ²Dept. of Urology, Cairo University, Egypt; ³Dept. of Molecular and Cellular Biology, University of California, Berkeley, USA; ⁴Philip R. Lee Institute for Health Policy Studies, San Francisco, USA; ⁵Dept. of Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Francisco, USA

Introduction and Objectives: The introduction of tyrosine kinase inhibitors (TKIs) has revolutionized the treatment of many malignant conditions. Little is known about the exact effects of TKIs on male fertility. While there is no sufficient evidence to support the effect of TKIs on male fertility and pregnancy outcome, the risk of infertility should be considered and the current recommendation is to use contraception while on treatment. We sought to evaluate the fertility expectations of male patients on TKIs, assess if healthcare providers counseled them about the possible effects of TKIs on their fertility, and discussed fertility preservation options prior to initiation of the treatment.

Materials and Methods: Men receiving TKIs as anticancer treatment in the University of California, San Francisco, completed an online survey. Cancer history, consultation with treating physician about the possible effects on fertility, obstacles to fertility preservation methods and satisfaction with treatment decisions

were addressed.

Results: Fifteen men completed the survey. Fourteen patients had CML and 1 had RCC, mean age was 41 years. About 2/3 of men were married or in a relationship. Ten out of 16 (63%) patients expressed their desire to have ≥1 child at the time of diagnosis. Most patients (13/15, 87%) believed that TKI therapy would not affect their ability to father children. Half of the patients mentioned that they were not warned about the possible reproductive effects of TKIs on their fertility. Consultation with a fertility specialist was not offered to the majority of patients (12/15, 80%). Two patients (15%) considered fertility preservation while none of them attempted it. Only half of the patients (8/15) were satisfied with their decisions and said that they would go for the same choice if they had to do it again.

Conclusions: Patients may not be aware of the potential reproductive effects of TKIs. It is prudent to refer patients to a fertility specialist for shared decision-making, where fertility preservation options can be discussed and obstacles can be addressed.

UP704

A Computer Based Questionnaire Assessment of Doctors Prescribing Practice of Mirabegron for the Treatment of Overactive Bladder (OAB)

Basra R, Ridout A, Malde S, Kelleher C
Guys & St Thomas' NHS Foundation Trust, London, UK

Introduction and Objectives: Mirabegron provides a new option for treating OAB. The only other widely used drug treatments for OAB are AM which cause variable degrees of side effects, limiting treatment efficacy. Prescribing practices of doctors are dictated by clinical guidelines, cost, reimbursement, and response to initial prescribing. The aims of this study were to investigate how physicians position the prescription of Mirabegron for real world clinical management of OAB.

Materials and Methods: A 14 item web-based survey was designed in order to determine physicians prescribing practices for OAB before and after the introduction of Mirabegron. The survey was circulated nationally and internationally to a randomly selected number of practicing clinicians within the IUGA membership.

Results: The survey had 245 visits: 113 complete (46%) and 22 partial responses (9%). The choice of treatment for OAB is determined primarily by the local hospital formulary. Safety and side effects were the least important determining factors in selecting 1st line treatment for OAB. Since the introduction of Mirabegron, 62% of clinicians would prescribe 2 AMs prior to considering treatment with Mirabegron if the 1st line AM failed due to tolerability issues. Despite the published safety data for

Mirabegron; a number of potential concerns regarding Mirabegron that would prevent its prescription were expressed. The prohibitive cost of treatment was a major concern. Twenty percent of clinicians were worried about lack of personal experience with Mirabegron and efficacy/tolerability data from clinical practice. Of the potential side effects from treatment, cardiac and hypertensive disease were the most concerning (reported by 22% of clinicians). **Conclusions:** More information about the cardiovascular profile of Mirabegron would reassure clinicians about its safety in older patients who may already have cardiovascular disease or risk factors. These individuals constitute the largest population of OAB patients, and are potentially most prone to AM side effects. Increasingly, pressure to prescribe Mirabegron will increase for patients who experience tolerability issues with AM, and it is likely that both patients and physicians may lobby to influence current clinical guidelines.

UP:705

Open versus Robotic-assisted Partial Nephrectomy with DaVinci Si FullHD Robot: Perioperative Results and Complications

Grad L, Dobrota F, **Hodor T**, Crisan N, Manea C, Manescu R, Coman I
Clinical Municipal Hospital Cluj Napoca, Romania

Introduction and Objectives: The comparison of surgical results, morbidity and positive surgical margins rate for patients undergoing robotic partial nephrectomy (RPN) versus open partial nephrectomy (OPN). The recent progress in minimal invasive surgery and the development of new conservative surgical techniques lead to the concept of renal parenchyma preservation when treating stage T1-T2 renal cancer.

Materials and Methods: This is an observational between January 2009 and January 2014. All clinical, surgical, and pathological variables of patients treated with OPN or RPN for renal tumors were gathered in a prospectively maintained database. Tumor nephrometry was measured with PADUA score. Intraoperatively were noted the overall operating time, warm ischemia time, blood loss and complications. Postoperatively, we recorded the recovery time, creatinin and hemoglobin seric values and complications. **Results:** A total of 71 patients were enrolled in OPN and RPN group. From the total of 71 partial nephrectomies, 50 were performed using open surgery, with retroperitoneal approach, and 21 using robotic-assisted laparoscopy, out of which 4 with retroperitoneal approach and 17 with transperitoneal approach. The mean warm ischaemia time (WIT) was shorter in the OPN group than in the RAPN group 12 (0-26) minutes vs. 16 (0-32) minutes. The estimated blood loss (EBL) was 340 (250-580) ml in the

OPN group and of 290 (190-520) ml in the RAPN group. In terms of oncological results, all patients with classic approach had negative resection margins and 20 out of 21 patients with robotic surgery had negative resection margins.

Conclusion: In the present series, RPN was associated with a significant reduction of blood loss, surgical complications and postoperative bleeding, and with a shorter hospitalization. Long-term results should be evaluated for both techniques, with a close postoperative follow-up.

UP:706

"TURis-plasma Vaporization" as Hyphenated Technique in BPH Therapy **Hodor T**, Grad L, Stanca D, Boc A, Prunduș P, Coman I *Clinical Municipal Hospital Cluj Napoca, Romania*

Introduction and Objectives: Transurethral resection is considered the standard treatment for benign prostatic obstruction (BPO). The objective of our study was to assess the efficacy and safety of transurethral resection in saline (TURis) followed by plasma vaporization for the symptomatic bladder outlet obstructions secondary to the benign prostatic hyperplasia (HBP).

Materials and Methods: Between January 2012 and December 2013, a total of 215 transurethral resections of the prostate in saline has been performed. We recorded the age distribution of patients, hospitalization time, operating time and the necessity of blood transfusion. We also evaluated the medium-term efficiency of the treatment using telephonic interview (IPSS score and QoL) one year after the intervention.

Results: The mean age of the studied group was 67 years (47-84) and the mean operating time 75 minutes (20-150). Most of the patients were discharged after 24 (26%), respectively 36 hours (51%). The longest hospital stay was 96 hours (6.5%). The catheterization period was 7 days. During hospitalization 9 (4.2%) patients, all with HBP over 100 ml, needed blood transfusion, without other noted significant complications. The rate of late complications (urinary incontinence, urinary obstruction due to bladder neck sclerosis) was low.

Conclusions: Transurethral resection in saline (TURis) followed by plasma vaporization is a safe and feasible technique for the treatment of symptomatic bladder outlet obstruction due to the benign prostate hyperplasia (BPH), with short time hospitalization and low rates of complications. This technique performed by the hyphenation of the two procedures has good functional outcomes and fast recovery of the patient.

UP:707

Pharmacotherapy Does Not Remove the Obstruction Caused by Benign Prostatic Hyperplasia: A Randomised Study

Granfors T, Hawas B

Dept. of Urology, Vastmanland Hospital, Sweden

Introduction and Objectives: Pharmacotherapy is a widely used alternative to transurethral surgery to reduce lower urinary tract obstruction caused by benign prostatic hyperplasia. **Materials and Methods:** Using Abrams-Griffiths pressure-flow diagram, we identified and randomised 36 patients with infravesical obstruction. Patients with catheter, neurogenic bladder, or prostate cancer were excluded. Seventeen patients were randomised to pharmacotherapy with alfuzosin 10 mg x 1 for prostates smaller than 40 ml and finasteride 5 mg x 1 for larger prostates. Two patients with large prostates combined both drugs. Nineteen patients were treated surgically with green light laser photovaporisation of the prostate (PVP). Before randomisation the patients were examined with transrectal ultrasound, cystometry and pressure-flow measurements, IPSS, and blood chemistry including serum PSA. All examinations including urodynamics were repeated after six months and two years.

Results: Before treatment there was no difference between the two treatment arms considering age, BMI, bladder capacity, residual volume, prostate volume, detrusor pressure at maximal flow, bladder outlet obstruction index, IPSS, and PSA. PVP was more favourable than pharmacotherapy. Six months from start we noticed no difference in residual urine volumes ($p = 0.61$), but clear differences for prostate volume ($p < 0.001$), detrusor pressure at maximal flow ($p < 0.001$), bladder outlet obstruction index ($p = 0.001$), IPSS ($p < 0.001$), and PSA ($p = 0.02$). There was no difference for bladder capacity ($p = 0.89$). At the 2-year follow-up there was no difference in residual urine volume ($p = 0.25$) or PSA ($p = 0.24$). For the other parameters PVP remained advantageous, for prostate volume ($p = 0.003$), detrusor pressure at maximal flow ($p < 0.001$), bladder outlet obstruction index ($p < 0.001$), and IPSS ($p < 0.001$). After six months on pharmacotherapy 15/17 patients (88%) were still obstructed. At two years five of the patients in this arm had underwent transurethral surgery and the rest 12/17 were urodynamically obstructed. **Conclusion:** PVP removed the obstruction caused by benign prostatic hyperplasia. Patients randomised to pharmacological treatment with alfuzosin or finasteride were still obstructed both six months and two years after the start of treatment.

UP.708

Visceral Obesity Is an Independent Predictor of Better Prognosis in Patients with Advanced Renal Cell Carcinoma Undergoing Nephrectomy

Jeon H, Lee H, Choi D, Lee S, Sung H, Jeong B, Seo S, Jeon S, Lee H, Choi H
Dept. of Urology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea

Introduction and Objectives: Visceral adiposity affects tumorigenesis and cancer metastasis by producing growth factors and cytokines. However, the prognostic impact of visceral fat in advanced renal cell carcinoma (RCC) is still conflicting. The aim of this study was to determine the effect of visceral obesity at the time of

surgery on prognosis of advanced RCC patients undergoing nephrectomy.

Materials and Methods: We reviewed clinicopathologic data of 2,187 patients who underwent nephrectomy for RCC at our institution. The visceral fat area (VFA) and subcutaneous fat area (SFA) were determined at the level of the umbilicus on patients' computed tomograms (CT) obtained before surgery. Patients were categorized as either viscerally obese ($VFA \geq 130 \text{ cm}^2$ in males and $\geq 90 \text{ cm}^2$ in females, $n=1,280$; VFA to SFA ratio (V/S) ≥ 0.4 , $n=1,875$) or non-obese. Associations linking visceral obesity and cancer-specific survival (CSS) or overall survival (OS) were evaluated by Kaplan-Meier analysis, the log-rank test and Cox proportional hazard regression model.

Results: Although elevated VFA was associated

with longer CSS ($p=0.017$) or OS ($p=0.027$), there was no significant difference in survival outcomes between the high and low V/S group. Low VFA was an independent predictor of cancer-specific death ($p=0.005$, hazard ratio = 1.654), as well as old age ($p=0.009$), advanced state ($p<0.001$), high tumor grade ($p<0.001$) and sarcomatoid differentiation ($p<0.001$). In subgroup analysis, the association between VFA-obesity and better prognosis was even more pronounced only in advanced state patients (CSS, $p=0.001$; OS, $p<0.001$). Study limitations were the retrospective design, single-center patient recruitment and limited follow-up duration.

Conclusion: High VFA was an independent predictor of better prognosis in advanced RCCs after surgery and it was more useful than V/S.